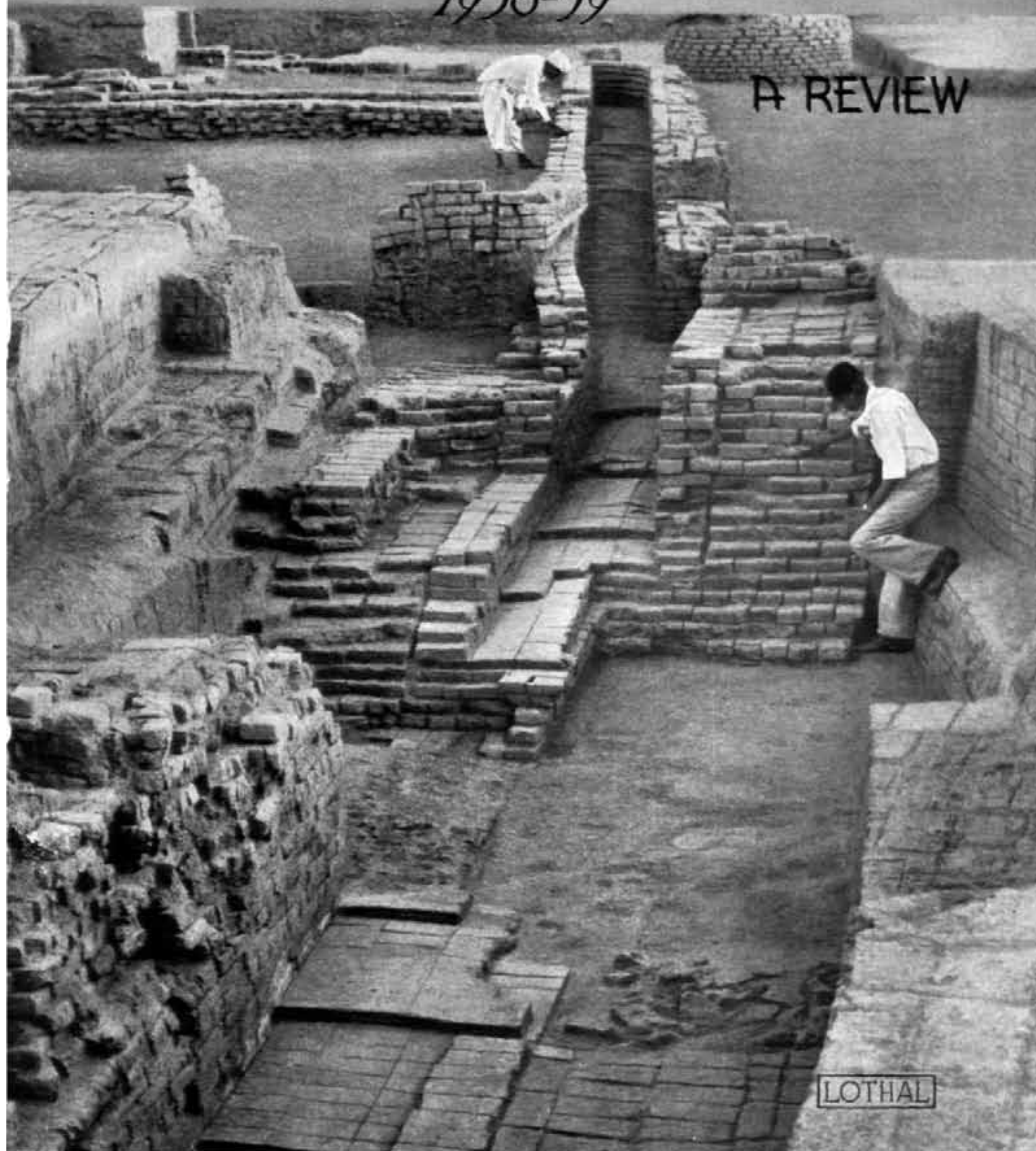
Indian Archaeology

1958-59

A REVIEW



INDIAN ARCHAEOLOGY 1958-59
—A REVIEW

EDITED BY

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Director General of Archaeology in India



DEPARTMENT OF ARCHAEOLOGY
GOVERNMENT OF INDIA
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ACKNOWLEDGEMENTS

This sixth number of the annual *Review* tries to embody, like its predecessors, information on all archaeological activities in the country during the previous year. The varied sources of information are obvious in most cases: where they are not, they have, as far as possible, been suitably acknowledged.

From the ready and unconditional response that I have all along been receiving to my request for material, it is obvious that it is realized at all quarters that the *Review* has been performing its intended function of publishing, within the least possible time, the essential archaeological news of the country.

At the same time, as it incorporates news obtained from diverse sources, the assumption of responsibility by me, as the editor, for the accuracy of the news, much less of the interpretation thereof, is precluded.

My sincerest thanks are due to all—officers of the Union Department of Archaeology and of the State Governments, heads of other organizations concerned with archaeology and individuals devoting themselves to archaeological pursuits—who have furnished me with material that is included in the *Review* and to those colleagues of mine in the Department who have assisted me in editing it and seeing it through the press.

New Delhi: A. GHOSH
The 10th September 1959

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INDIAN ARCHAEOLOGY 1958-59

-A REVIEW

I. GENERAL

DURING THE YEAR 1958-59 AN ALL-ROUND PROGRESS IN THE ARCHAEOLOGICAL activities was recorded in the country.

The explorations of the year covered all parts of the country and all the early epochs of her history. Tools of Series I and II and microliths were recovered from many river-valleys and other localities, a large number of them already examined before and others brought to notice for the first time. Apart from the recovery of a large number of tools, no outstanding stratigraphic evidence about their occurrence seems to have been recorded, except perhaps some reported observations in the Narmada valley. Nevertheless, the explorations have resulted in the location of a large number of new implementiferous sites, which have enlarged the horizon of the early Stone-Age cultures of India.

The excavation of an ash-mound at Utnoor in District Mahbubnagar revealed its neolithic character.

* * * * *

Important were the surveys of some tracts which are to be drowned in the near future as a result of irrigation-projects. Such tracts were the Chambal valley in Dis-trict Mandasor of Madhya Pradesh State and the Tapti valley in District West Khandesh of Bombay State. The surveys resulted in the discovery, in some cases followed by excavations, of sites of a varied nature. In the Chambal valley there were discovered early and late palaeolithic localities, rock-shelters with primitive paintings and medieval temples In the Tapti valley sites variously with tools of Series I and II, microliths and chalcolithic relics were found. It is hoped that further and more intensive explora-tions will be carried out in these regions before they are finally lost for all investigation.

* * * * *

Fraught with remarkable results was the excavation at Alamgirpur, a site 28 miles to the north-east of Delhi, which has been proved to have been a station of the Harappa culture. The discovery of that culture well within the Ganga-Yamuna valley enormously enlarges its horizon, apart from opening up new possibilities for the investiga-tion into the genesis of the early cultures in the Ganga basin. At Alamgirpur the Painted Grey Ware culture succeeded the Harappa, but as there was a hiatus between the two here as at Rupar, it has been of no avail in the establishment of any direct link

between the two; nevertheless, it has added a pier to the bridge which, it is hoped, will one day connect the end of the one with the beginning of the other.

The year's excavation at Lothal was important in more ways than one. In the first place, a late phase of the Harappa culture, already known at Rangpu and. other places in the Gujarat peninsula, was detected in a localized part of Lothal itself. Secondly, an enormous brick enclosure was exposed; if it represents something like a wharf, as has been believed, it would be an interesting testimony to the water-borne trade carried out by the Harappans of Lothal. Thirdly, of the graves excavated in the cemetery-area, three—all of the earlier phases—emtombed two individuals. The significance of this practice of double burial will be better understood when the anthropologist's report on the skeletons is available.

Rojdi, in Saurasthtra, continued to be excavated and revealed different phases of the Harappa culture.

Renewed excavation at Navdatoli, which has already established itself as the key-site of the chalcolithic culture of the Narmada basin, confirmed and, to a certain extent, modified the previous results. The excavators now feel that there is evidence to show that the site had Iranian contracts from its very inception. A link between the Narmada and Godavari cultures was provided by the occurrence of the Jorwe Ware in Phase III of Navdatoli. Significant were the Carbon-14 dates obtained for the material from the site.

At Daimabad in the Godavari valley was secured interesting evidence on chalco-lithic burial-practices.

To turn to the Ganga valley again. Excavation at Sravasti yielded a few speci-mens of the Painted Grey Ware in association with what may be regarded as the immediate predecessor of the Northern Black Polished Ware from its lowest pre-fortification levels. Also interesting was the find of iron, as at Alamgirpur, along with the Painted Grey Ware. It appears that both the sites represent that last phase of the Painted Grey Ware culture which was absent at Hastinapura on account of its having been de-serted as a result of a heavy flood during the lifetime of that culture. Painted specimens of the Northern Black Polished Ware formed a feature which Sravasti shared with Kausambi, where also such specimens were found in this year's excavation.

The excavation at the fortifications of Kausambi continued to yield interesting evidence about the defensive system of the site and its stratigraphy. With its origin seemingly going back to an age prior to the Northern Black Polished Ware, it also seems to have lost its defensive function fairly early in the life of the city.

Vaisali, an early historical city in northern Bihar, was re-excavated. The de-fences had three Periods, the earliest overlying deposits with the Northern Black Polished Ware and the latest believed to belong to the late Kushan and early Gupta age. In the core of the earliest defences were a few grey sherds with paintings, identical pottery having been found with the Northern Black Polished Ware in a habitation-site as well.

At the *stupa*-site of Amaravati in Andhra Pradesh, despoiled long ago, could still be traced, by excavation, the base of the *stupa.* Also were discovered relic-caskets which had luckily escaped vandalism.

GENERAL

Work at Nagarjunakonda, with its relics of a most varied nature, continued in full swing. Neolithic burials, microliths, megalithic tombs, Buddhist and Brahmanical monuments and the citadel of the Ikshvakus figured among the excavated remains.

Excavation at T. Narasipur in the upper Kaveri valley yielded polished stone axes and pounders in its lowest levels, associated with thick burnished grey, orange and red wares. In the next Period occurred the full-fledged megalithic Black-and-red Ware.

At Chandraketugarh in West Bengal, a larger part of the temple, traced last year, was brought to light. It is believed to belong to the Gupta age.

An apsidal structure, the first in east India, was excavated at the top of the Udayagiri hill in Orissa, well-known for its rock-cut Jaina caves.

The remains of two most impressive Buddhist monasteries were laid bare at Ratnagiri in Orissa, where a large *stupa* had been exposed in the previous year. Ratna-giri has now taken a definite place in the history of late Buddhist art and architecture. Interesting was the discovery of sealings showing that the Buddhist establishment had borne the same name as the place does today.

The medieval fortifications of Delhi were further investigated in the Mehrauli area to the north of the Qutb.

The epigraphical discoveries were many and varied. Some inscriptions supply new dates for known rulers and a few introduce new rulers.

Of the other discoveries, mention may be made of additional finds of stone sculptures from the Buddhist caves at Pitalkhora in the Deccan. Previously-unnoticed Buddhist caves were found at Khambhalida in Saurashtra. Excavation at the top of the caves at Junagadh exposed the remains of residential structures.

A large number of monuments received attention by way of structural repairs, chemical preservation and general tidying up.

The architectural survey of temples progressed satisfactorily. In the north, the Gupta temples and the early medieval temples of Rajasthan, Gujarat and central " India were studied. In the south, interesting results were obtained by the analysis of the elements of Pallava and other contemporary rock-cut cave-temples and monolithic temples.

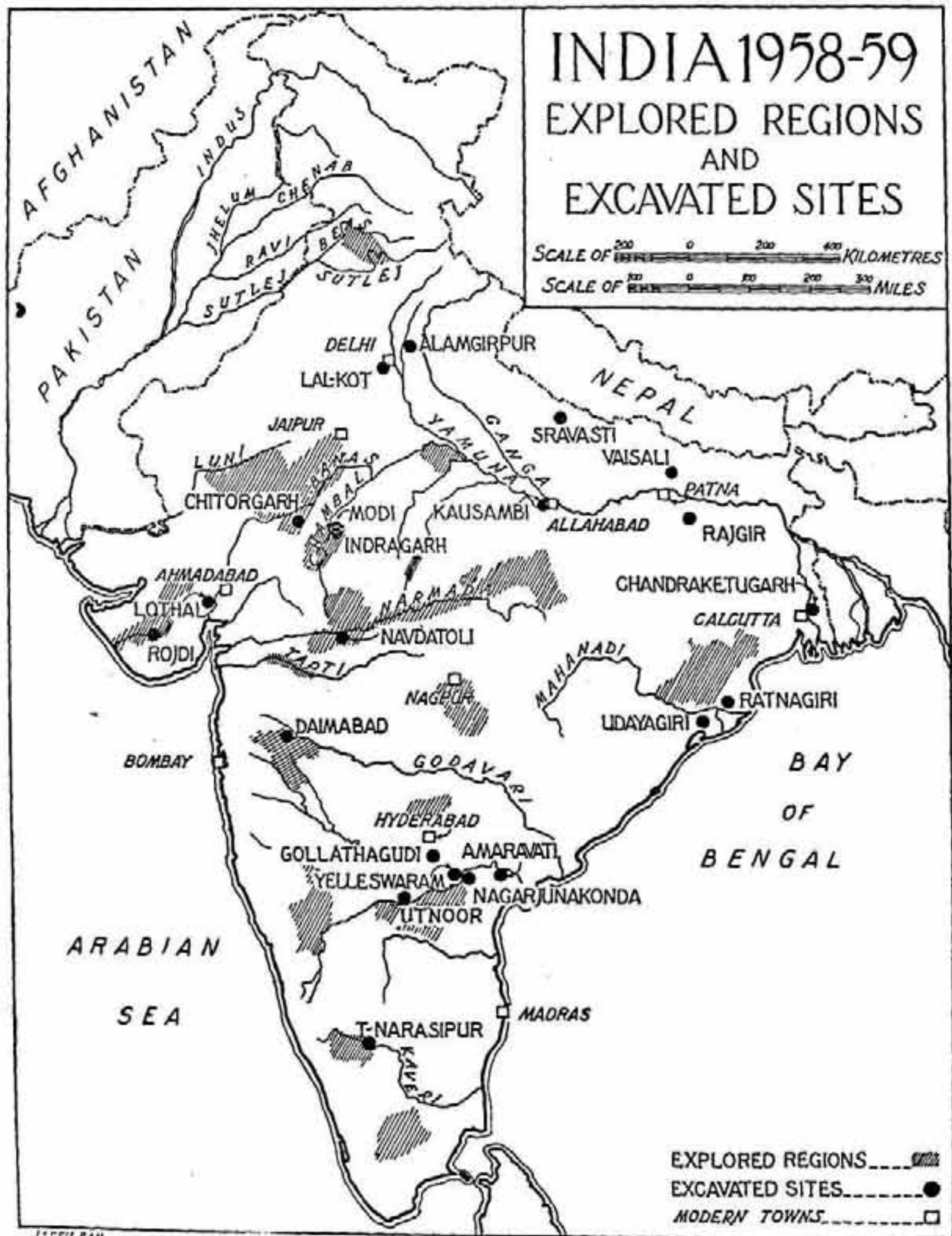

INDIA 1958-59
EXPLORED REGIONS
AND
EXCAVATED SITES
SCALE OF KILOMETRES
SCALE OF MILES
AFGHANISTAN
PAKISTAN
INDUS
JHELUM
CHENAB
RAVI
BEAS
SUTLEJ
DELHI
ALAMGIRPUR
LAL-KOT
NEPAL
JAIPUR
YAMUNA
GANGA
SRAVASTI
VAISALI
LUNI
BANAS
CHAMBAL
PATNA
CHITORGARH
MODI
KAUSAMBI
ALLAHABAD
RAJGIR
INDRAGARH
AHMADABAD
NARMADA
CHANDRAKETUGARH
LOTHAL
CALCUTTA
ROJDI
NAVDATOLI
MAHANADI
TAPTI
NAGPUR
RATNAGIRI
UDAYAGIRI
DAIMABAD
BOMBAY
GODAVARI
BAY
OF
BENGAL
HYDERABAD
GOLLATHAGUDI
AMARAVATI
YELLESWARAM
NAGARJUNAKONDA
UTNOOR
ARABIAN
SEA
MADRAS
T-NARASIPUR
KAVERI
EXPLORED REGIONS
EXCAVATED SITES
MODERN TOWNS
JASSU RAM

Fig. 1

II. EXPLORATIONS AND EXCAVATIONS[1]

ANDHRA **PRADESH**

1. EXCAVATION AT AMARAVATI, DISTRICT GUNTUR.—Shri Krishna Murty of the Nagarjunakonda Excavation Project of the Department, under the direction of Dr. R. Subrahmanyam, brought to light the damaged portion of the original drum, *ayaka*-platforms and *pradakshina-patha* of the despoiled *stupa* (pl. I A). The *stupa* itself measured 168 ft. in diameter and the *pradakshina-patha*, excluding the base of the railing, 11 ft. in width. Of the other structures, belonging to three Periods, those of Period I were meagre and consisted only of a dilapidated brick floor and steps of irregular Cuddapah slabs. Period II included an oblong chamber, a votive *stupa*, 10 ft. 8 in. in diameter, and a lime-concrete floor with plinths of various dimensions. Belonging to Period **III** were an elaborate enclosure-wall, 129 ft. long and 3 ft. 9 in. wide, with Cuddapah-slab flooring in the interior, three votive *stupas*, a shrine of Jambhala, five brick platforms and three isolated brick walls.

The association of the Northern Black Polished Ware with Period I, of the Rouletted Ware and limestone sculptures of the second-third centuries A.D. with Period **II** and of the Celadon Ware and Tantric icons with Period III would reveal that the site had been in occupation from the third-second centuries B.C. to the ninth-tenth centuries A.D.

The antiquities included five crystal caskets (pl. II A) recovered from the slots made for them in the *urdhva-patha* of the railing. An inscription of the second century A.D. referred to the restoration *(nava-kamma)* and another to the installation of the *chetiya-kambha* with *dhatu* on the southern side of the *stupa*. Also were found slabs portraying scenes from the life of Buddha such as the *Mahabhinishkramana* (pl. II B), stone images of Buddha and late deities (pls. I B and C and II D), particularly Maitreya, Heruka, Tara and Ugra-Tara, a stucco image of Jambhala and a limestone lotus-medallion (pl. II C).

2. EXCAVATION AT NAGARJUNAKONDA, DISTRICT GUNTUR.—In continuation of previous years' work *(Indian Archaeology 1954-55-A Review,*[2] p. 22; *1955-56,* p. 23; *1956-57,* p. 35; *1957-58,* p. 5), excavation was further extended this year to cover an area of about 1,800 acres by the Nagarjunakonda Excavation Project of the Department, under Dr. R. Subrahmanyam, assisted by Shri M. D. Khare, Shri H. Sarkar, Shri Abdul Wahid Khan and Shri Raghbir Singh, with the general guidance of Shri T. N. Ramachandran. The discoveries included neoliths, microliths and megalithic burials, apart from numerous structures of the historical period, the more important of which were a burning *ghat*, a temple of Ashtabhujasvamin, a wide irrigation-canal and a thirtysix-pillared *mandapa*.

One of the areas yielded microliths of non-geometric shapes in jasper, quartz, quartzite, chalcedony, agate and crystal, without any pottery associated with them, the

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[1] See fig. 1.

[2] This publication is referred to in the following pages by the year only.

types represented being the point, burin and scraper, besides cores and coarse flakes. In another area microliths and coarse flakes (pl. III A, second row) were found in association with pottery, mainly with a brown slip, conforming to the neolithic pottery of Nagarjunakonda. The microliths belonged essentially to a short-blade industry, consisting of lunates, crescents, crescentic points, scrapers, etc., besides a large number of fluted cores (pl. III B, first and second rows).

To the west of this area was another area with neolithic pits, their contents being pottery, animal bones, microliths (pl. III B, third row) and flake tools (pl. III A, first row), besides other stone objects and paste beads. The pits, mostly circular, varied in diameter from 3 ft. 6 in. to 6 ft. Post-holes near the edges of some of them suggested their probable use as a sort of shelter. One of the pits had an articulated skeleton as in 'sagging burials'. A large number of polished stone axes, blades and flakes of crystal (pl. III B, fourth row) and a bone tool were picked up from the area. The types of pottery (fig. 2), in burnished grey, reddish brown and black- and cream-slipped wares, were the typical neolithic urn with a flaring and out-turned rim, deep bowl and shallow lid-*cum*-dish, besides sherds with spouts, flat bases and ring-bases. The pottery was mostly hand-made. The decorations were simple and consisted of incised oblique lines or leaf-designs, besides the usual band or rib around the body.

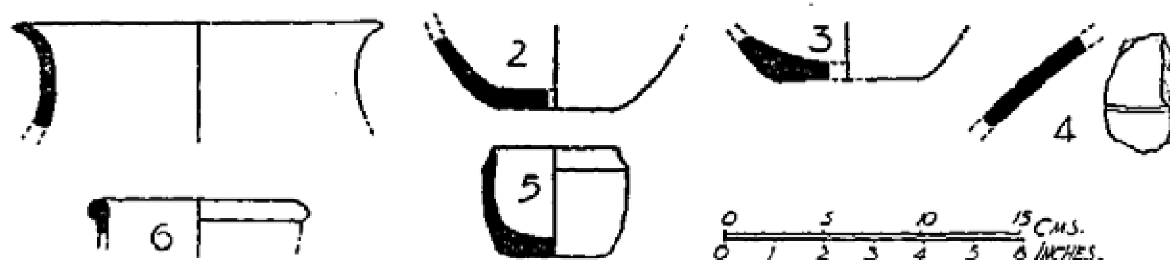


FIG. 2. *Nagarjunakonda : neolithic pottery*

Megalith II *(1957-58,* p. 5), an untrimmed cairn-circle with an external diameter of 24 ft. 10 in. (fig. 3), was found to enclose an oblong pit, which, at a depth of 6 ft. 5 in., contained an extended and partly-disarticulated adult skeleton oriented north-south on a layer of ash on the pit-floor. The broken skull was found in the northern part of the pit. There were six iron objects, including a javelin, 5 ft. 9 in. long, and presumably a tanged dagger, besides pots.

Further excavation at Stupa 9 revealed four structural phases (pl. IV A), the renovation of the last but one phase having taken place in the ninth regnal year of Ehuvula Chamtamula. A small fragmentary inscription recovered from one of the chambers of the *stupa* mentioned *kumara-siri-Vira,* indicating that the complex had been in existence during the time of Virapurushadatta. Contiguous to this was a unique memorial *stupa* with a *svastika* at the centre of the base (pl. IV B).

An oblong residential brick structure, having four compartments with a common verandah, was found to the west of the 'auditorium'. It was superimposed by an early medieval structure, associated with iron slag, terracotta pipes and grey-ware pottery. Nearby was a lime-kiln—a circular rubble structure with narrow passages on four sides.

Of the excavated Buddhist remains, one was a rubble *stupa* with four associated votive *stupas.* The former was decorated on the exterior with sculptured slabs. One of the frieze-beams recovered from the site contained the representation of the *Vessan-tara-Jataka* and an inscription mentioning *Vichayapuri,* perhaps standing for *Vijaya-pun.*

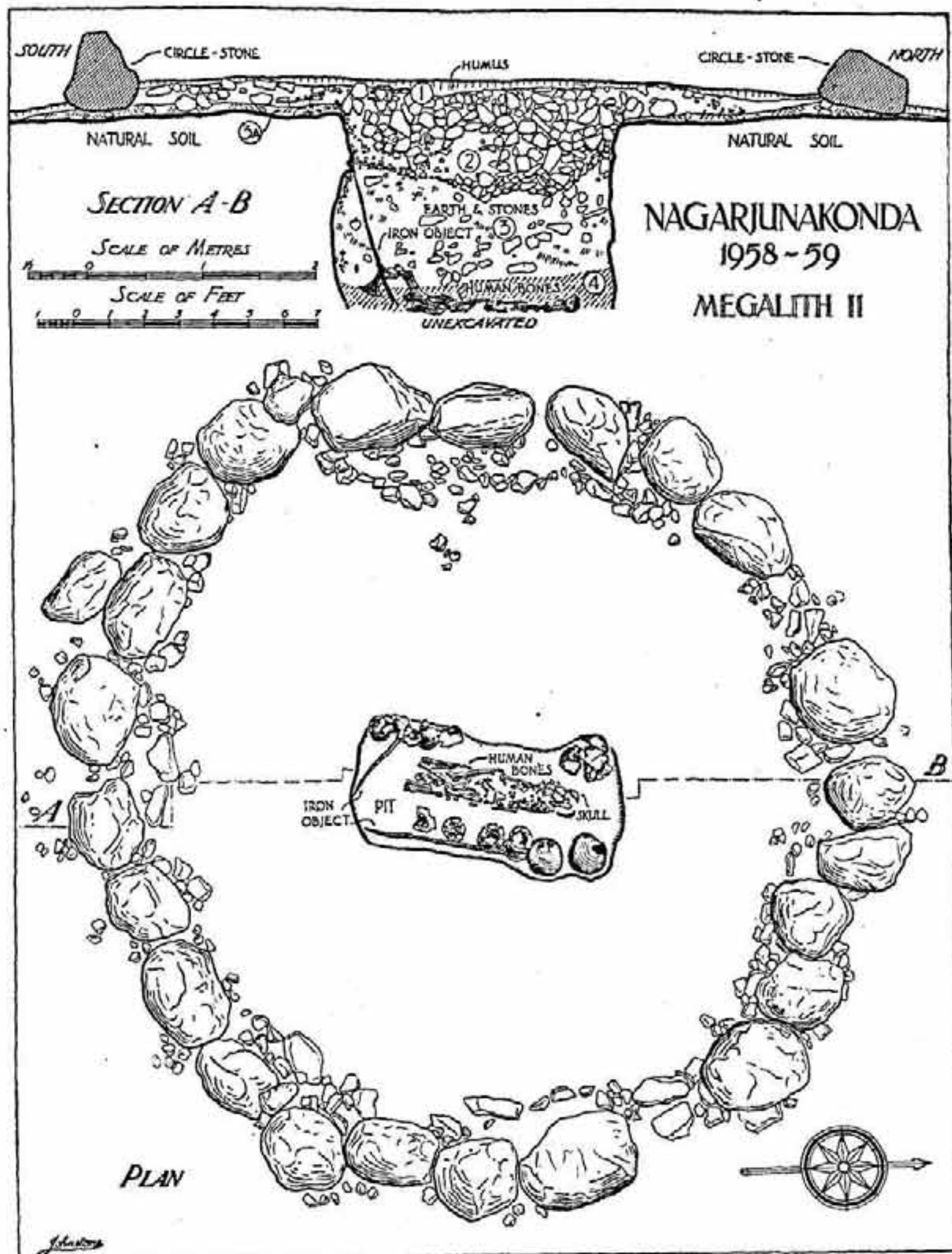

SOUTH
CIRCLE - STONE
HUMUS
CIRCLE - STONE
NORTH
NATURAL SOIL
NATURAL SOIL
SECTION A-B
SCALE OF METRES
SCALE OF FEET
EARTH & STONES
IRON OBJECT
HUMAN BONES
UNEXCAVATED
NAGARJUNAKONDA
1958-59
MEGALITH II
HUMAN BONES
IRON OBJECT
PIT
SKULL
A
B
PLAN

FIG. 3

The other Buddhist structures included: a *chaitya-griha* with a row of cells towards the south in a fair state of preservation; a four-spoked *stupa* with *ayaka*-platforms and a square central hub; a monastery complete with a four-spoked brick *stupa,* in an enclosure; a three-winged *vihara* with three cells in each row; and a sixteen-pillared hall.

A thirtysix-pillared *mandapa*, adjacent, to a brick hall, possibly used as a provision-shop, was exposed to view. Nearly a dozen storage-jars were found inside the hall, along with a few miniature vessels, which might have been measures.

On the bank of the river Krishna, in the north-eastern corner of the valley, long rows of pillared *mandapas* had previously been noticed, superimposed by medieval rubble structures. These later structures were removed to expose the plans of the underlying early Ikshvaku buildings. During this operation, a slab bearing an inscription (pl. V A), dated in the ninth regnal year of the Abhira king Vasishthiputra Vasushena and recording the consecration of a wooden image of Ashtabhujasvamin, was discovered. The record further mentioned *maha-talavara maha-gramika maha-dandanayaka* Sivasena of Kausika-*gotra,* the Yavana princes of Sanjayapuri, Saka Rudradaman of Avanti and Vishnurudrasivalananda Satakarni of Vanavasa, who appear to have had some share in the consecration of the image and benefactions made in the reign of the Abhira king.

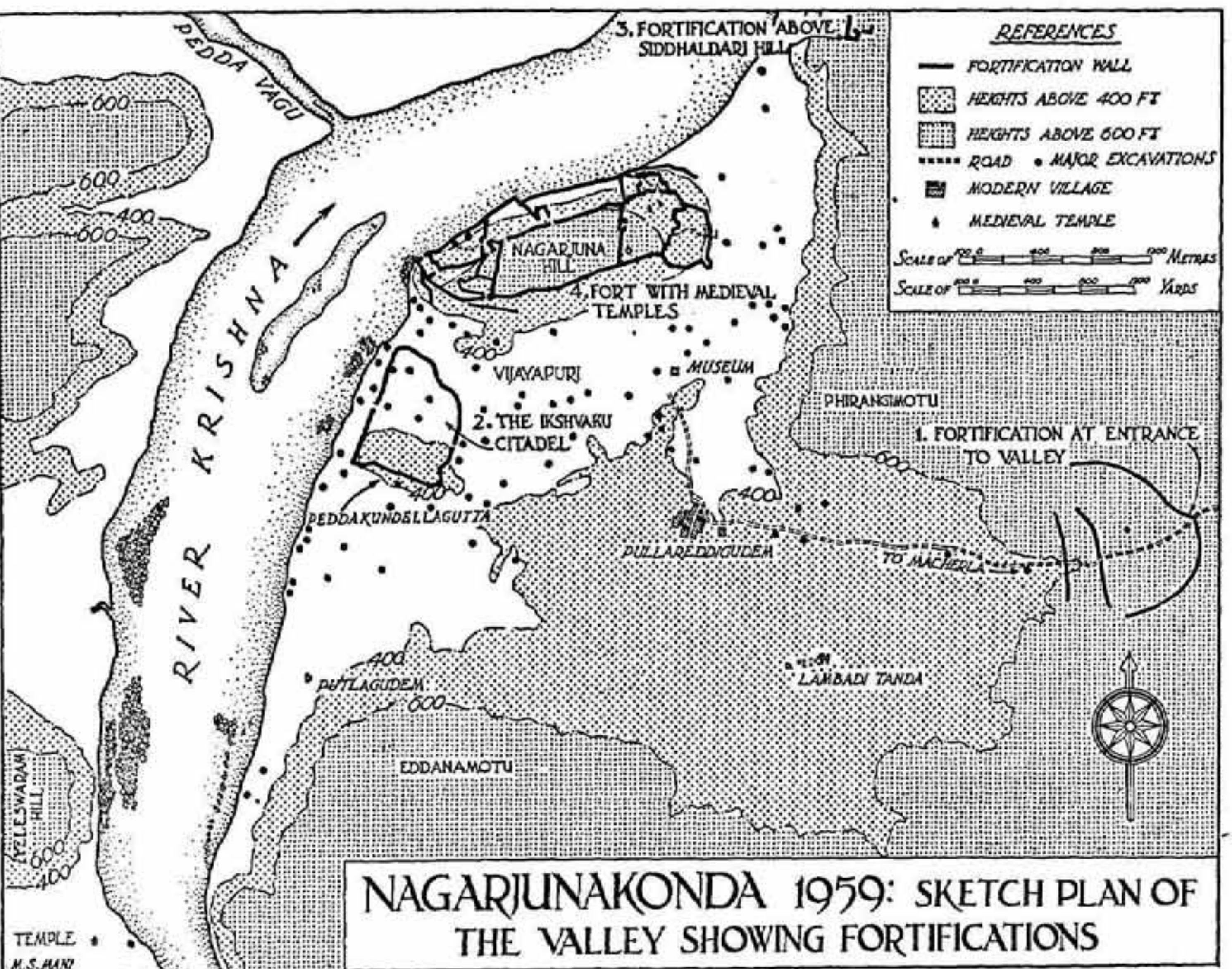
The structural remains in the area comprised three shrine-chambers with a *dhvaja-stambha* opposite one of them. Two inscribed conches (pl. V B), one bearing in addition an incised *chakra* on a pedestal flanked by *ankusa* and *chhattra* on either side, were found; one of the inscriptions read *bhagavato Athabhujasamisa* and the other *dach-chinakanasara.* A gold plaque (pl. V C), with a nobleman holding a lotus and standing in the posture of adoration, was among the antiquities recovered from the area.

Excavation on the northern slopes of the Nagarjuna hill on the river-bank revealed to view remains of a cremation-ground (pl. VI A), presumably of the royal family of the Ikshvakus. It had three units. The first consisted of huge pillared halls with seating arrangements, fixed *bana-lingas* at the corners and screened *mandapas.* A sculpture of a lady against a ladder, as though jumping into fire (pl. VI B), might suggest that *sati* had been practised here. Slightly to the west of this and at a higher level was the second unit, also a pillared hall. Another sculpture of a lady lying in state (pl. VI C) was recovered from this site, along with huge pots used in funerary functions. The third unit comprised a ruined temple of Siva fronted by a *dhvaja-stambha* with an inscription of the reign of Ehuvala Chamtamula referring to the god Bhagesvara (?).

Interesting was the discovery of a canal, 30 ft. wide and 6 ft. deep, running east-west, belonging to the Ikshvaku period. With ramps on both sides (pl. VII A), the canal-bed was traced to a length of 1000 ft. On the southern side of the canal were two *mandapas,* one a *chatuhsala* and the other a sixteen-pillared hall.

Interesting data, particularly on the sequence of structures built for military or residential purposes, were brought to light inside the citadel. Outside the western gateway of the citadel, the existence of an outwork or barbican was suggested by a strong brick wall, 6 to 7 ft. in height and 3 to 4 ft. in width. Extentions to the east of the *asvamedha*-complex brought to light a number of residential structures enclosed by a bnck wall, suggesting a deliberate partition for the royal buildings in this part of the citadel.

Exploration revealed that the valley had four fortifications (fig. 4). The first, built of rubble, stood at the entrance to the valley from the eastern land-side. The second, archaeologically the most important, enclosed the citadel of the Ikshvakus, the bulk of the Ikshvaku buildings being situated between the 300- and 400-ft. contours.



3. FORTIFICATION ABOVE SIDDHALDARI HILL
REFERENCES
FORTIFICATION WALL
HEIGHTS ABOVE 400 FT
HEIGHTS ABOVE 600 FT
ROAD • MAJOR EXCAVATIONS
MODERN VILLAGE
MEDIEVAL TEMPLE
SCALE OF METRES
SCALE OF YARDS
PEDDA VAGU
NAGARJUNA HILL
4. FORT WITH MEDIEVAL TEMPLES
VIJAYAPURI
MUSEUM
2. THE IKSHVAKU CITADEL
PHIRANGIMOTU
1. FORTIFICATION AT ENTRANCE TO VALLEY
PEDDAKUNDELLAGUTTA
PULLAREDDIGUDEM
TO MACHERLA
RIVER KRISHNA
PUTLAGUDEM
LAMBADI TANDA
EDDANAMOTU
YELESWARAM HILL
TEMPLE
M.S.MANI
NAGARJUNAKONDA 1959: SKETCH PLAN OF THE VALLEY SHOWING FORTIFICATIONS

Fig. 4

Sections cut across this defensive wall (pl. VII B) revealed the following facts. In Phase I the wall consisted only of heaped-up mud-and-*morum* with a wide ditch on all sides except the south, where it overlay the Peddakundellagutta hill. In Phase II a brick wall, with an average width of 11 ft., was built over the first rampart. A retaining wall along the inner slope of the rampart protected the filling below the foundation of the brick wall, while rubble-packing strengthened its outer face. In one of the trenches on the west repairs to the retaining wall were apparent.

The third fortification, built of rubble, ran on the summit of the Siddhaldari hill. The last, of medieval construction, ran over the top edge of the Nagarjuna hill. It was divided into three zones by partition-walls and had six gates approached by ramps and steps running through well-guarded outworks.

3. EXPLORATION IN DISTRICT KURNOOL.—Exploration carried out by Shri N. Isaac, on behalf of the Deccan College Post-graduate and Research Institute, Poona, resulted in the discovery of fortysix sites with a bearing on Stone Age cultures. Further, a dozen megalithic sites were also noticed. The assemblage of artefacts found at the Stone Age sites may, on the basis of typology and technique, be assigned to one or the other of Series I, II and III.

The following facts deserve special attention. (1) The region of caves and rock-shelters abounds in artefacts. (2) The river Gundlakamma and its tributaries in Cumbum and Markapur Taluks have stratified sections. (3) In some of the stratified sections, tools of Series II occur in some numbers in the topmost deposits capped in most cases by brown soils, 2 to 5 ft. thick. (4) In the heart of the present forested area of Nallamala Hills are found tools of Series I and II. (5) Wells dug 2 to 4 furlongs away from the beds of the Tigaleru, the Nallavagu, a tributary of the former, the Rallavagu at Yerragondapalem in Markapur Taluk and the Bhavanasi at Bairluti in Atmakur Sub-Taluk have yielded stratified sections. (6) At some sites Series II tools are found invariably associated with grey-surfaced pellety soil and sometimes at the junction of this soil with the yellow or brown soil. (7) There are both open-air sites and gravel-deposits with tools.

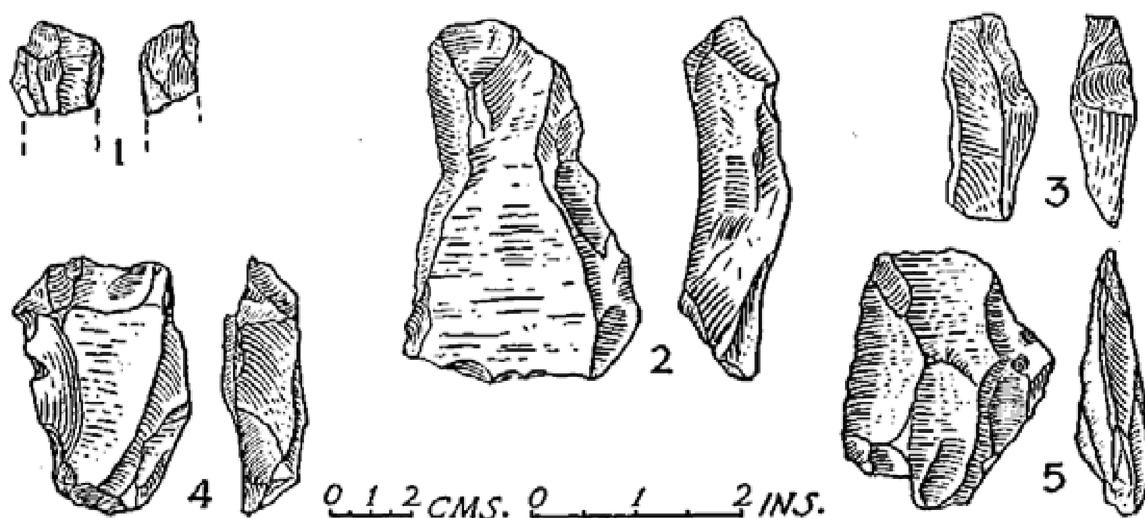


FIG. 5. *Satwar : stone tools*

Of the sites surveyed by Shri B. Raja Rao of the South-eastern Circle of the Department, Hattibellagallu and Kuppagallu, both in Adoni Taluk, yielded a number of neolithic celts and a few pieces of the megalithic Black-and-red Ware. The latter place also had a black polished ware.

4. EXPLORATION IN DISTRICT MEDAK.—In the course of his exploration, Shri A. V. Narasimhamurty of the South-eastern Circle of the Department discovered tools of Series II and a few microliths at Appareddipalli and Satwar (fig. 5) in Zahirabad Taluk. At Ismailkhanpet were found a number of microliths, sherds of the megalithic Black-and-red Ware and a few etched carnelian beads.

5. EXCAVATION AT GOLLATHAGUDI, DISTRICT MAHBUBNAGAR.—Excavation within and around a ruined temple known as Gollathagudi near Gamganur, lying amidst a few mounds, was undertaken by the Department of Archaeology, Government of Andhra Pradesh, under Dr. P. Sreenivasachar. The area inside the structure, 11 ft. 6 in. square, which contained a sculpture against its western wall, was connected with the outside by a long east-west trench, which revealed the eastern entrance of the temple and three pedestals of pillars, probably pertaining to a *mandapa.* Another trench, north-south, yielded a fragmentary image, probably of a *naga*. A large Jaina image was recovered from the mound.

6. EXCAVATION AT UTNOOR, DISTRICT MAHBUBNAGAR.—Excavation at the ash-mound by the Department of Archaeology of the Government of Andhra Pradesh, under Dr. P. Sreenivasachar, revealed rows of post-holes, showing the alignment of the stockades around the settlement on the site. A flat platform with thick earth-deposits over it indicated the original floor and its rebuildings. From the occupational deposit in the inner stockade were found a few potsherds and animal bones, mostly charred, as also blades of chert and chalcedony. A thick irregular ash-deposit below the second floor indicated a large accumulation of cow-dung. That the site had undergone many conflagrations was shown by several strata of burnt material. From the fact that, except near the surface where pottery of the first-second centuries was found, there was nothing but neolithic material, it seemed likely that the site, in the main, had been abandoned during neolithic times.

Carbon-14 test by the British Museum, London, of a piece of charcoal has shown it to be 4120±150 years old.

7. EXCAVATION AT YELLESWARAM, DISTRICT NALGONDA.—Excavation, continued *(1957-58,* p. 9) by Dr. P. Sreenivasachar at the temple-site, was carried down the natural soil. Well below the surface, in deposits evidently belonging to the Satavahana period, were found, among other antiquities, red- and black-slipped pottery, terracotta figurines and lead coins. Further below were found three megalithic burials with the typical pottery. One of them was composed of five slabs, one at the bottom and four placed vertically to form an oblong cist without any capstone. Inside the cist were found two human skulls and other bones and around it a jar with red slip outside and a black-slipped bowl. In the contemporary deposits were also found a few microlithic flakes and cores of jasper.

Nearby were the remains of a structure of wedge-shaped bricks, presumably a *stupa,* with a diameter of 39 ft., and of a *ghat,* 125 ft. long, with twentyfive steps, facing the river Krishna.

BIHAR

8. EXCAVATION AT VAISALI, DISTRICT MUZAFFARPUR.—Excavation was started by the K. P. Jayaswal Research Institute, under Dr. A.S. Altekar and Shri Sita Ram Roy at the ruins of the fort of Vaisali, known as Raja-Visal-ka-garh.

A trench, 135 ft. long and 21 ft. wide, at one of the highest points in the south-eastern corner of the fort revealed that the defences fell into three Periods (pl. VIII A). In Period I the defence-wall was made of baked bricks, as evidenced by thick brick debris, and possibly belonged to the Sunga period, as it rested on a deposit with the Northern Black Polished Ware and wares associated with it. The debris suggested that the breadth of this wall had been about 20 ft. in thickness.

In Period II the defences consisted of a massive rampart, 68 ft. in width at the base, 21 ft. in width at the extant top and 13 ft. in extant height; it was made of earth, the digging of which left a moat around the fort. A sealing of Agnimitra (pl. IX A) found in one of the post-rampart layers, with characters of the second century B.C., was a pointer to the date of the erection of the rampart.

In Period III, probably of the late Kushan and early Gupta age, a brick rampart, 9 ft. wide, was constructed, with military barracks, some of them built of bricks measuring 14½ in. x 9½ in. x 2 in., at least in the south-eastern corner of the fort; spear-and arrow-heads andother iron implements unearthed from the area of the barracks proved that they had been used by soldiers. A few Kushan coins were found in this area. The open space between the barracks and the defence-wall, about 30 ft. wide, might have been used as a road.

In some trenches excavated within the fort a network of structures, belonging to three Periods, was met with. Period I, with by a single structure of bricks measuring 19 in. x 10¾ in. x 3 in., probably belonged to the Sunga age. Period II, associated with the sprinkler and deep bowl and probably attributable to the Kushan age, had extensive brick buildings: one of the walls was traced to a length of 77 ft. Period III, which yielded Gupta sealings (pl. IX B), again had a substantial brick wall running north-south over a length of 57 ft., with rooms of varying dimensions attached to it. The building represented by them probably had a roof of tiles, fragments of which were found in the debris.

A few broken pottery jars, in a few cases placed vertically one above the other, similar to those in Period III of Hastinapura, were found in a trench (pl. VIII B). In another trench, near the centre of the fort, were found sherds of the Northern Black Polished Ware along with two sherds of grey ware painted in black (pl. X A). (Four sherds of the latter ware, one of them with a fine lustre, were also found in the mud rampart, where they must have been redeposited from earlier levels.) Their fabric was coarser than that of the typical Painted Grey Ware, though the painted leaf-design on one of the sherds from the rampart had its parallels on the Painted Grey Ware from Hastinapura.

Among the other notable finds from different trenches, mention may be made of gold (pl. X B) and silver objects found in a small pot, near which was another pot containing silver amulets (pl. XI A) and one hundred and twentyone beads of semi precious stones (pl. XI B). The gold objects consisted of two ear-ornaments, their interior filled with copper, with artistic designs in repousse, two ear-rings, two humped bulls, a standing human figure in the Kushan-Mathura style and a hair-clip or armlet, the last three with hollow tubes behind.

9. EXCAVATION AT RAJGIR, DISTRICT PATNA.—In continuation of the work done in previous years *(1953-54*, p. 9; *1954-55,* p. 16; *1957-58,* p. 16) in the Jivakamravana area, this year's work by the Mid-eastern Circle of the Department, under Dr. K. C. Panigrahi and Shri A. C. Banerji brought to light another elliptical hall, 228 ft. x 38 ft., its walls, 3½ ft. wide, built of rubble in mud-mortar (fig. 6).

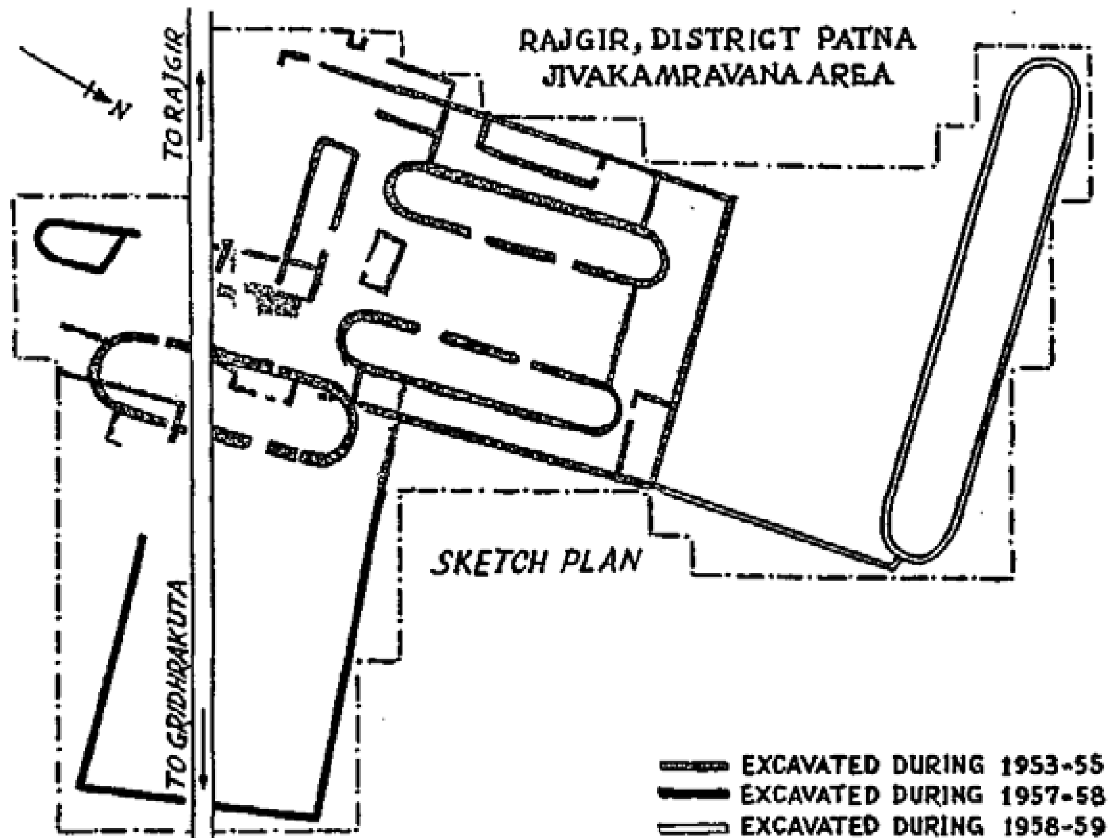


FIG. 6

BOMBAY

10. EXCAVATION AT LOTHAL (SARAGWALA), DISTRICT AHMADABAD.—Continued excavation at this Harappan site *(1954-55,* p. 12; *1955-56,* p. 6; *1956-57,* p. 15; *1957-58,* p. 12) this year by the Lothal Excavation Project of the Department, under Shri S. R. Rao, produced a consistent plan of the excavated part of the settlement and brought to light a dockyard (?). Important was the identification of a late Harappan settlement at the site. In the cemetery an interesting feature was the system of twin burials.

The extent of the town must have been twice as large as that is indicated by the present mound (pl. XII). Within the excavated area, four streets, two running north-south and two others east-west, and two lanes were exposed. Flanking one of the streets was a row of twelve houses with their bath-rooms connected with a public drain

(pl. XIII A). Two other houses stood on either side of another street with an underground drain (pl. XIII B). To dispose of sullage-water, soakage-jars and cess-pools were made use of. To ensure a quick flow of water in the drain, drops were provided at regular intervals on its brick floor. Another interesting feature was the provision of a sluice-gate at the mouth of the drain, where a wooden door could be slided in grooves (pl. XIV A).

On either side of the third street were small mud-brick houses; one of them was a coppersmith's workshop and two others bead-manufactories with dumps of finished and unfinished shell beads. The fourth street led to the cemetery.

The discovery of a large dockyard (pl. XV A) attested to the water-borne trade practised by the inhabitants of Lothal. Situated at the eastern end of the mound, it was roughly trapezoid on plan: its eastern and western embankments were each 710 ft. long; the northern measured 124 ft. and the southern 116 ft. The greatest extant height of the embankments was 14 ft. Boats could enter the harbour at high tide through an opening in the eastern embankment (pl. XV B), the dwarf-wall near the entrance being meant to retain water even at low tide. A spill-channel existed in the southern embankment for the outlet of excess water; at the mouth of the channel could be seen two grooves for a sliding door (pl. XIV B). Narrow steps at the end and grooves at regular intervals in the side-walls of the channel suggested that a door could have been made to rest against wooden logs at desired places to maintain the required level of water.

The occupation of Lothal fell into five Phases, the third one divisible into two Sub-phases (pl. XVI). The first four belonged to the mature stage of the Harappa culture (Period I) and the fifth and last to a late phase of that culture (Period II). Whereas Period I was characterized by regular streets and an intricate system of surface and underground drains, those of Period II were haphazardly localized.

A cutting across the slopes connecting the dockyard with the Harappan strata of the mound revealed that after the destruction of the town, including the dockyard, by a major flood in Phase IV, towards the end of Period I, the site had been re-occupied' in Period II. This event could not have been far removed in time from the end of the mature Harappa occupation at Lothal in Period I, as is borne out by the continued occurrence in the early and middle levels of Period II of all the typical Harappan ceramic forms, disc-beads of steatite and chert weights and blades. In course of time, new ceramic types were evolved from the earlier ones and virtually ousted the latter. The typical pottery of Period II was the bowl with a blunt-carinated shoulder and the non-carinated dish, either singly or on a squattish stand; the goblet, beaker and perforated jar were absent. Of the painted designs, geometric motifs, such as hatched and filled triangles, oblongs and diamonds and alternately-hatched squares were common to both the Periods (pl. XVII).

Period II yielded two seals: one of them bore two Indus symbols (pl. XVIII A). Terracotta figurines (pl. XIX A), bangles, whorls and cart-frames (pl. XIX B) were comparable with the corresponding typical Harppa specimens.

In all, ten graves, belonging to Phases III to V, were exposed in the cemetery-area, those of Phase V (Period II) being heavily disturbed due to their proximity to the cultivated surface of the mound. Even the skeletons of some of the graves of the earlier Phases were found dislocated by the later grave-pits. In three of the graves, all of Period I, there were two skeletons placed side by side (pl. XX), the pit of one of them being lined with mud-bircks. If the examination of the skeletons shows that in each case one is that of a male and the other of a female, a case for the prevalence of a custom resembling the *sati* among the Lothal people would be established.

While the twin burials were devoid of any earthenware, the single graves were furnished with pottery, in one case with a typical dish-on-stand and a vase with a rounded base (pl. XX A), and in another a high-necked jar painted in black with wavy lines and loop-desings (pl. XX C).

The orientation of most of the bodies was north-south, with the head, to the north, placed on a slightly-raised ground and the face, in some cases, turned to the east.

The small finds included six seals with animal figures, one of which was that of a tiger (pl. XVIII C). A terracotta sealing depicted a composite animal figure with a trunk of an elephant, horns of a bull and an erect tail looking like a snake (pl. XVIII B). Besides, there were other seals of copper, terracotta and soapstone, agate and chert weights of cubical and plano-convex shapes and copper bangles and a rod with four grooves for stretching wire (pl. XVIII D).

Of a large variety of designs painted on pottery in black over red and chocolate over red or buff, mention may be made of a bird holding fish in its beak and perching on a tree—a common design. The crane, stag, peacock, sparrow and snake formed the other painted animal designs in Period I, which had also the reserved slip and comb-work as decoration on its pottery. Period II had the painted designs of the deer, bull and peacock.

11. EXPLORATION IN DISTRICT AHMADNAGAR.—Shri B. P. Bopardikar of the South-western Circle of the Department discovered tools of Series II, mostly scrapers, from Baregaon-Nandur, Tandulwadi, Dhanori Budruk and Khurd and Manori-Renapur, each situated on the Mula or one of its tributaries.

Manori-Renapur, Musalwadi, Daimabad (below) and Khedle-Parma-nand had chalcolithic remains—painted ware with microliths and fluted cores. A large number of microliths without pottery were collected from Dehare, Rahuri Budruk and Khurd, Degras, Desvandi, Baregaon-Nandur, Tandulwadi, Silegaon, Arad-gan, Kodvad, Sada, Khadamba Budruk and Khurd, Dhanori Budruk and Khurd, Vervandi and Kendal Budruk and Khurd.

Belonging to the early historical period, characterized by dull and red-slipped pottery, were Manori-Renapur and Vambori.

12. EXCAVATION AT DAIMABAD, DISTRICT AHMADNAGAR.—Situated on the left bank of the Pravara, a tributary of the Godavari, the 20-ft. high mound, with stone axes (pl. XXI A), microliths and cores and decorated and plain pottery on its surface—all proclaiming its chalcolithic character—was excavated by the South western Circle of the Department, under Shri M. N. Deshpande.

On the basis of the ceramic and other evidences derived out of the excavation, the occupation was divisible into three Phases (fig. 7). The earliest inhabitants of the site who settled on the Black Cotton Soil, in Phase I, used a thick and coarse grey ware, similar to that of Brahmagiri I, consisting of the large globular urn with a flared rim, basin with a slightly out-turned rim, subspherical bowl and stemmed lid with a pointed or round tip, with a marked tendency to the treatment of the rim and tip of the lid with red ochre. The hand-made pottery, mainly accounted for by the large trough, platter with a vertically-flattened rim and huge storage-jar, was mostly decorated with incised or applied decorations, including linear, criss-cross and finger-tip decorations. Painted pottery was scarce, but special mention should be made of the fragment of a huge jar, which, though not recovered from the regular excavation, could still be regarded as belonging to this phase, as it was found resting right on the natural soil. It was treated with a pinkish slip on the interior and with a thick buff

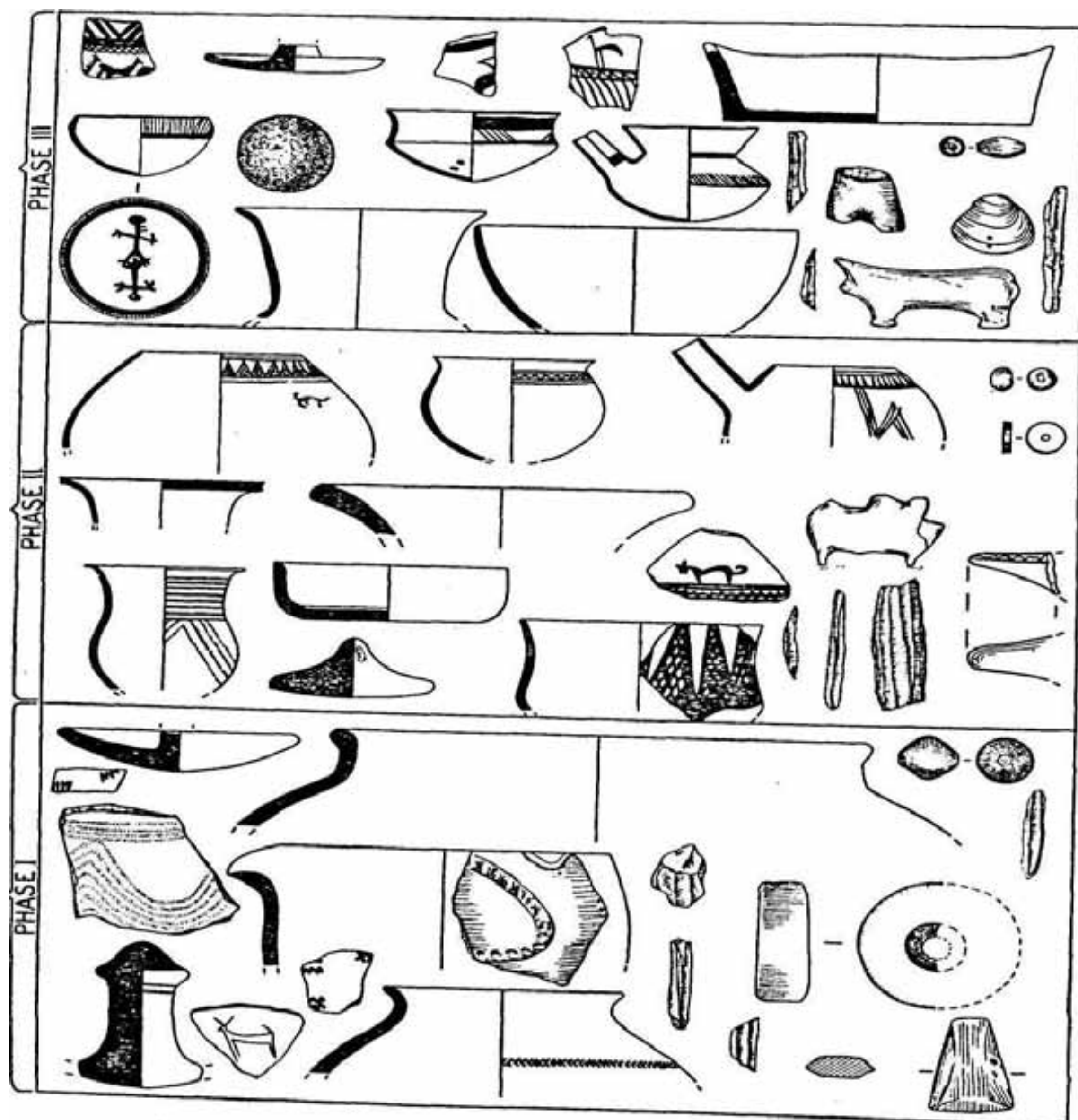


FIG. 7. ***Daimabad: sequence of cultural equipments***

slip on the exterior, which was profusely painted with a jungle-scene in two horizontal compartments (fig. 8; pl. XXII B). The upper compartment had a muscular human figure with two deer approaching it as if enchanted and peacocks in between: the lower had three tigers springing away in the opposite direction. The bodies of the animals were hatched in broken lines.

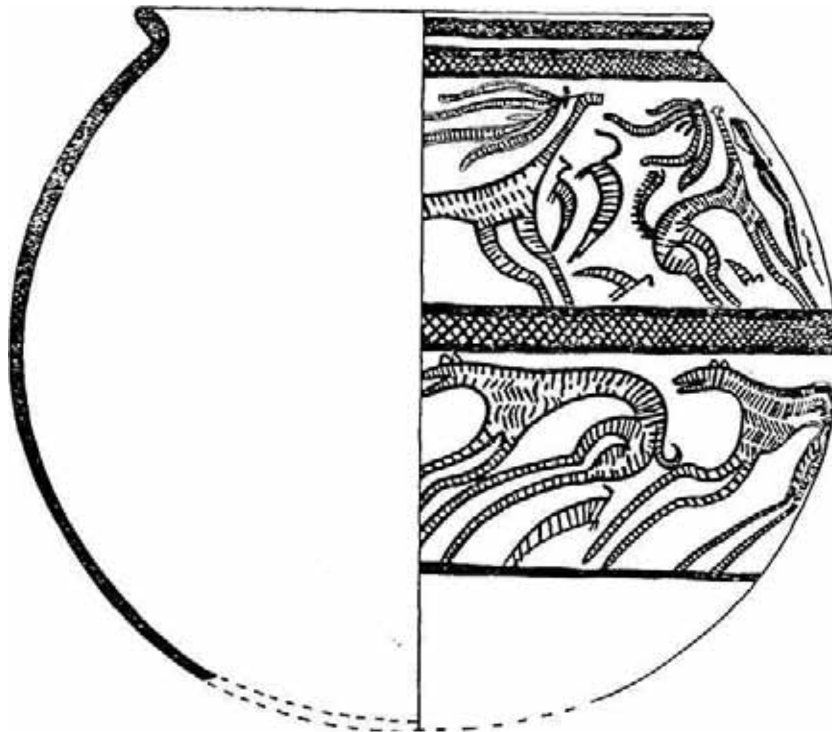


FIG. 8. *Daimabad: painted jar, Phase I*

Microliths, mostly of chalcedony, consisted essentially of parallel-sided and pen-knife blades. A few beads of terracotta and semi-precious stones (pl. XXII A) completed the collection of small finds.

In Phase II, there was a predominance of pottery with paintings in black on a red surface. It was of a medium fabric and was treated with a thin brown, deep-red, light-orange or pink slip. The principal types were the subspherical bowl, sometimes with a tubular spout, shallow cup, short-necked *handi* and high-necked jar. A painted channel-spout, probably of a cup, was typical of the Narmada-Godavari chalco-lithic culture. The paintings (pl. XXIII) included geometric patterns such as triangles, squares, lozenges, etc., hatched, filled or otherwise, and oblique, vertical or horizontal lines, non-geometric patterns, such as hooks, loops, festoons, etc., and animals such as the dog, goat, etc., drawn in a conventional manner. Grey 'and red wares, sometimes hand-made, continued side by side.

Microliths were found in large numbers, while copper was represented by a fragmentary celt, a pin-head and a fragmentary knife (pl. XXI B). The terracotta figurines included the head of a dog and a humped bull. Beads of semi-precious stones, shell and faience were found (pl. XXII A).

The ceramic industry of Phase III was dominated by the painted Jorwe Ware, of fine fabric and well-levigated clay, turned on the fast wheel and well-fired. The

types comprised the concave-sided carinated bowl, rarely with a tubular spout, spouted vessel with a funnel-shaped rim and high-necked globular jar with a beaded rim. The painted patterns were mostly linear and geometric, though animal and human motifs were present. Grey and red wares including, hand-made specimens, persisted.

Microliths were found in even larger numbers than in Phase II. Stone mace-heads, pottery spindle-whorls, beads of semi-precious stones (pl. XXII A), a gold coil, possibly an ear-ornament, two terracotta human figures and a terracotta dog showed the cultural equipment of the Phase.

The houses were either circular or rectangular on plan, as shown by post-holes. The floors were of rammed clay mixed with husk and were plastered with lime. A thick deposit of lime resting on rammed clay formed an embankment on the river-side during this Phase.

Evidence for the disposal of the dead was available in all the Phases. The only grave of Phase I was within the habitation-area: it was represented by an extended adult skeleton, partly cut by a later pit, with its skull towards the north. Phase II had another grave—a specially-dug pit with a complete skeleton, oriented north-south and unaccompanied by any furniture (pl. XXIV A). Of the two skeletons belonging to Phase III, one was completely despoiled; the second, also oriented north-south, rested on a rammed-clay floor in the habitation-area without any grave-goods (pl. XXIV B). The part of the skeleton below the knees was damaged. The skeleton did not lie in a pit; on the other hand, a series of fourteen post-holes all round suggested the existence of a canopy. It was, therefore, a case of lying in state before the burial.

Another funeral method was the urn-burial, restricted to children. One such burial consisted of two grey-ware urns with flared rims, containing skull, ribs and lower extremities of the body and placed flat mouth-to-mouth with a north-south orientation in a pit just sufficient to accommodate them. Sometimes a painted carinated bowl and spouted vessel, probably containing respectively food and water, were placed beside the urns (pl. XXV A). An infant-burial in a single urn, lying flat with its mouth towards the south, was met with. In another burial, probably of an older child, whose remains could not be accommodated in two urns, three urns were used, the third placed in continuation of the other two, which were disposed mouth-to-mouth (pl. XXV B). Skeletal remains were distributed in all the three, which also contained bone beads. A carinated bowl, a spouted vessel and small *lota*-shaped vases formed the subsidiary pots.

13. EXPLORATION IN DISTRICT CHANDA.—Shri L. K. Srinivasan of the South-eastern Circle of the Department found tools of Series I and II, a number of microliths and black polished sherds at Nagaram. He found tools of Series II and a few crude neolithic implements at Sironcha and a number of stone circles at Chakal-pet.

At Amgaon he found a group of stone temples with a number of images of Brahma, Vishnu, Siva and Ugra-Narayana in the same style as in the Markanda group, assigned to the eleventh and twelfth centuries.

Another structure of interest was an old tank of considerable dimensions near Junona, having a masonry embankment for a distance of more than a mile and an elaborate system of underchannels connected with the tank at different points. On the embankment were the ruins of a Gond palace.

14. EXPLORATION IN DISTRICT JHALAWAR.—Shri S. R. Rao found tools of Series II in the gravel-beds at Kotada and Rangpur on the Bhadar and at

Thoriali on the Goma. At Rangpur the section was fairly clear: overlying a limestone bed was a gravel-deposit with jasper, agate and rarely chert, which was succeeded by buff *kankar*. The pre-Harappan and pre-pottery microliths of Rangpur may therefore be regarded as belonging to a series succeeding tools of Series II.

15. EXPLORATION IN DISTRICT MADHYA SAURASHTRA.—The Department of. Archaeology of the Government of Bombay, under Shri P. P. Pandya, discovered in the Bhadar valley a site with tools of Series II near Rojdi, a microlithic site, twelve Harappan sites and seventeen early historical sites, in addition to the ones recorded last year *(1957-58*, p. 18). The Harappan sites were characterized by the convex-sided bowl, handled bowl, dish with flared rim, dish-on-stand, square-rimmed jar and perforated jar. Both red and buff wares were present. The painted designs consisted of roundels, wavy lines, hatched triangles, interesting loops, leaves, etc.

One of the Harappan sites, near Randal Dadwa, was found to contain a cemetery : one of the graves was excavated and an extended skeleton, its head supported on a dressed stone, exposed. Fragments of Harappan bowls and dishes were recovered from the vicinity of the skeleton.

A list of Harappan and early historical sites, with the names (in brackets) of the nearest villages, where necessary, are given below.

Harappan sites: Bodiyo (Motadevalia); Dhankanio-2 (Motasagapar); Dhutar-pur (Vasawad); Dumiani; Ghorwada (Dhurasia); Kerali; Lukhela (Vasawad); Ran-daliyo (Randal Dadwa); Taraghada (Rayadi); Tetariyo (Motadevalia); Vadasada; and Vegadi.

Early historical sites: Ardoi; Devalka (Sultanpur); Gadhiyo (Navagadh); Garbo (Sanali); Goriya (Bhimora); Gundai-ni-dhar (Khokhari); Hanuman-valo, two sites (Kerali); Kotharia; Madhi (Sultanpur); Mochiwadar (Jhanjhmer); Pipalia; Raj-kot; Roghada; Satapar; Simoi (Sultanpur); and Vadia.

16. EXCAVATION AT ROJDI, DISTRICT MADHYA SAURASHTRA.—In continuation of last year's work *(1957-58*, p. 18), Shri P. P. Pandya further excavated the mound at Rojdi.

The Harappan occupation of the site (Period I) fell into three Phases, A, B and C. The first settlers on the site, in Phase A, built a 2-ft. high mud platform, capped by rammed earth and lime, to carry their mud and mud-brick houses. Their pottery (fig. 9) consisted of the convex-sided bowl, carinated bowl, handled bowl, perforated jar, square-rimmed jar, vase with a beaded rim and round belly, dish-on-stand, trough, etc. The pots were generally made of well-levigated clay and were uniformly fired. They were treated with a red, and rarely with a chocolate, slip and were mostly unpainted except for a few horizontal bands in black. Crude and ill-burnt pottery was, however, not absent; it was sometimes treated with a greyish slip and was decorated with wavy incised lines or concentric corrugations.

Blades, trapezes and lunates of chert and pipes, rings and celts of copper were in use. The personal ornaments were spiral gold rings, copper bangles, etched beads of carnelian and beads of faience, terracotta, etc.

Phase B, which arose after the destruction of the previous Phase by fire, was characterized by rubble and mud structures plastered with lime and rammed-earth floors. The ceramics of the Phase (fig. 9) represented two traditions, red ware and buff ware, the latter in lesser quantities than the former; a few green sherds were also found. The main types were the convex-sided bowl, perforated jar, dish with a flared rim and dish-on-stand. The designs painted in black on a red, buff or chocolate slip

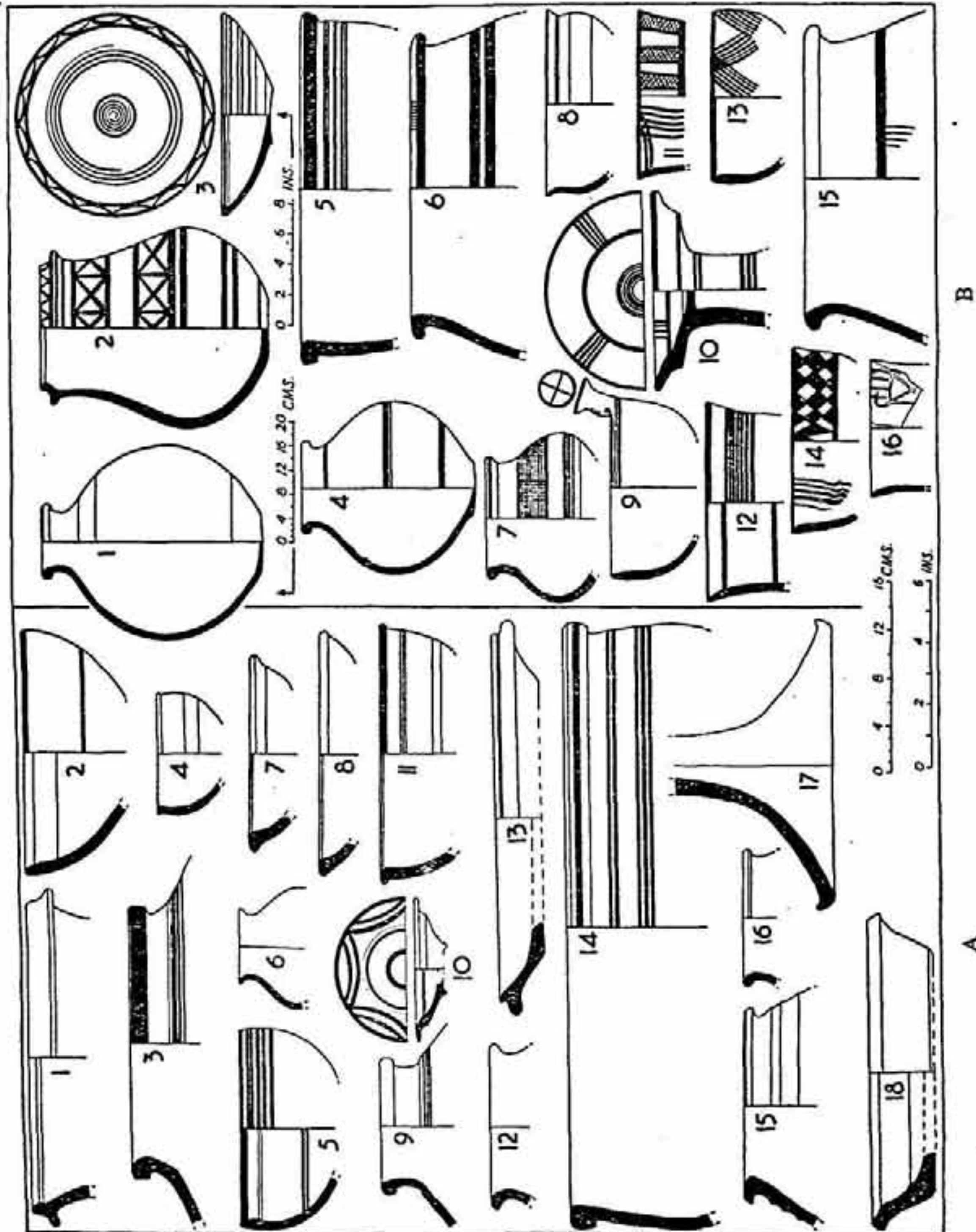


Fig. 9. *Rojdi: pottery-types, Period I, Phases A and B*

included the fish, leaves, hatched triangles and lozenges, intersecting loops, roundels, wavy lines, vertical bands, etc. Two black-and-red sherds, one with painting in white consisting of concentric circles and the other of a bowl, were interesting. The corrugated grey ware occurred in much greater proportions than in the previous Phase. While the treatment of some specimens in this ware was similar to that of Period I of Prabhas Patan, the incised decoration characteristic of that site was absent.

Small blades and other microliths in geometric shapes were common. Copper was represented by chisels, rods and bangles. Beads of faience, banded agate and etched carnelian, gold ear-ornaments, cubical weights of chert and gamesmen were the other noteworthy finds of the Phase.

In Phase C only rubble structures were encountered. Along with the late Harappa red ware, in which, however, the perforated jar and square-rimmed jar were absent, the characteristic pottery of Period II of Prabhas was introduced (fig. 10). The painted designs were mainly horizontal bands, but slanting bands, wavy lines and intersecting loops were not absent. Crude ware decreased in number. Beads of car-nelian, shell and terracotta were recovered.

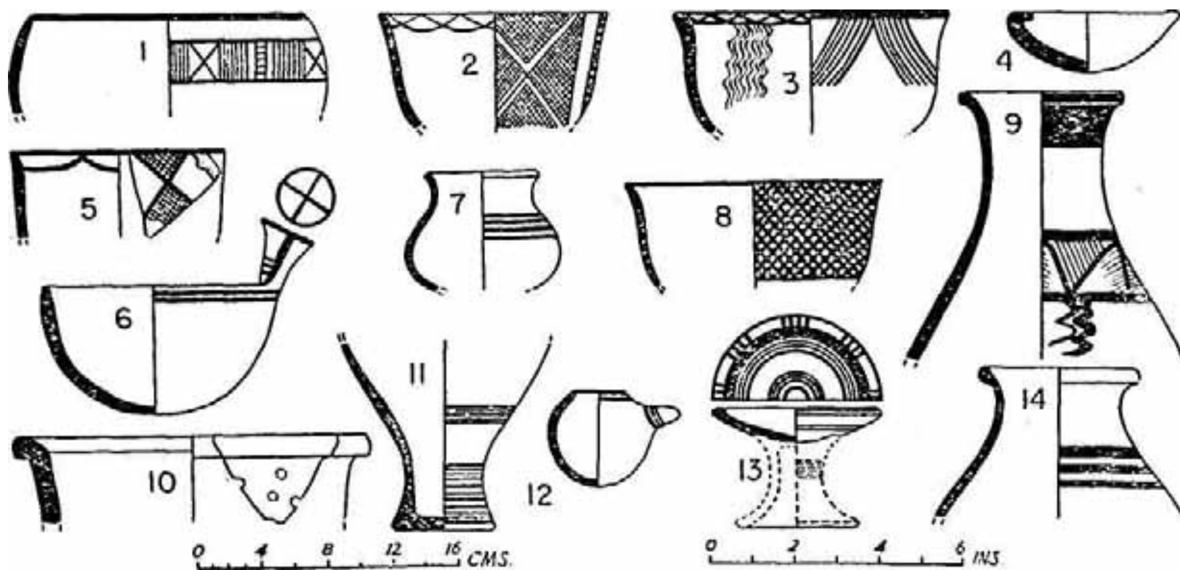


FIG. 10. ***Rojdi: pottery-types, Period I, Phase C***

After a long desertion, a part of the site was re-occupied in the early historical period (Period II) by a people using the Red Polished Ware and coarse grey and black pottery. Though the structural remains of this Period were scanty, it could be seen that the alignment of the houses was entirely different from that of the preceding Period.

17. EXPLORATION AT MAHAJARI, DISTRICT NAGPUR.—The Excavations Branch of the Department, under Shri N. R. Banerjee, explored the megalithic site at Mahajari near Junapani, 8 miles to the west of Nagpur, where nearly three hundred megaliths of the cairn-type were noticed. The diameter of the stone enclosures varied from 29 to 60 ft. north-south and 34 to 59 ft. east-west, the average height of the cairn-filling above the ground-level being 3 ft. Near the village were found a large number of finished and unfinished beads of agate, jasper and quartz in different shapes, such as bicone, truncated bicone, barrel, hexagonal, spherical, plano-convex, disc and multifaceted.

18. EXPLORATION IN DISTRICT WEST KHANDESH.—The Prehistory Branch, under Dr. R.V. Joshi, assisted by Shri S. A. Sali and Shri B. P. Bopardikar, both of the South-western Circle of the Department, explored a 25-mile long stretch of the Tapti valley between Prakasha and Ukai (fig. 11), bringing to light, amongst others, four sites with the scraper-flake assemblage of Series II (pl. XXVI A). Of the three river-sections noticed in the valley, the one at Uddhamgadh was important, in that its gravel-bed yielded a few implements *in situ.*

An examination of the localities situated on the banks of the river revealed, in addition, chalcolithic sites, respectively at Uddhamgadh, Kukurmunda, Pimplas, Hatoda, Ubhad (Prakasha), Bahurupa, Satola, Ashrava and Koparli. At most of these sites extensive erosion had removed considerable portions of their cultural deposits and the material was found scattered in the adjoining fields.

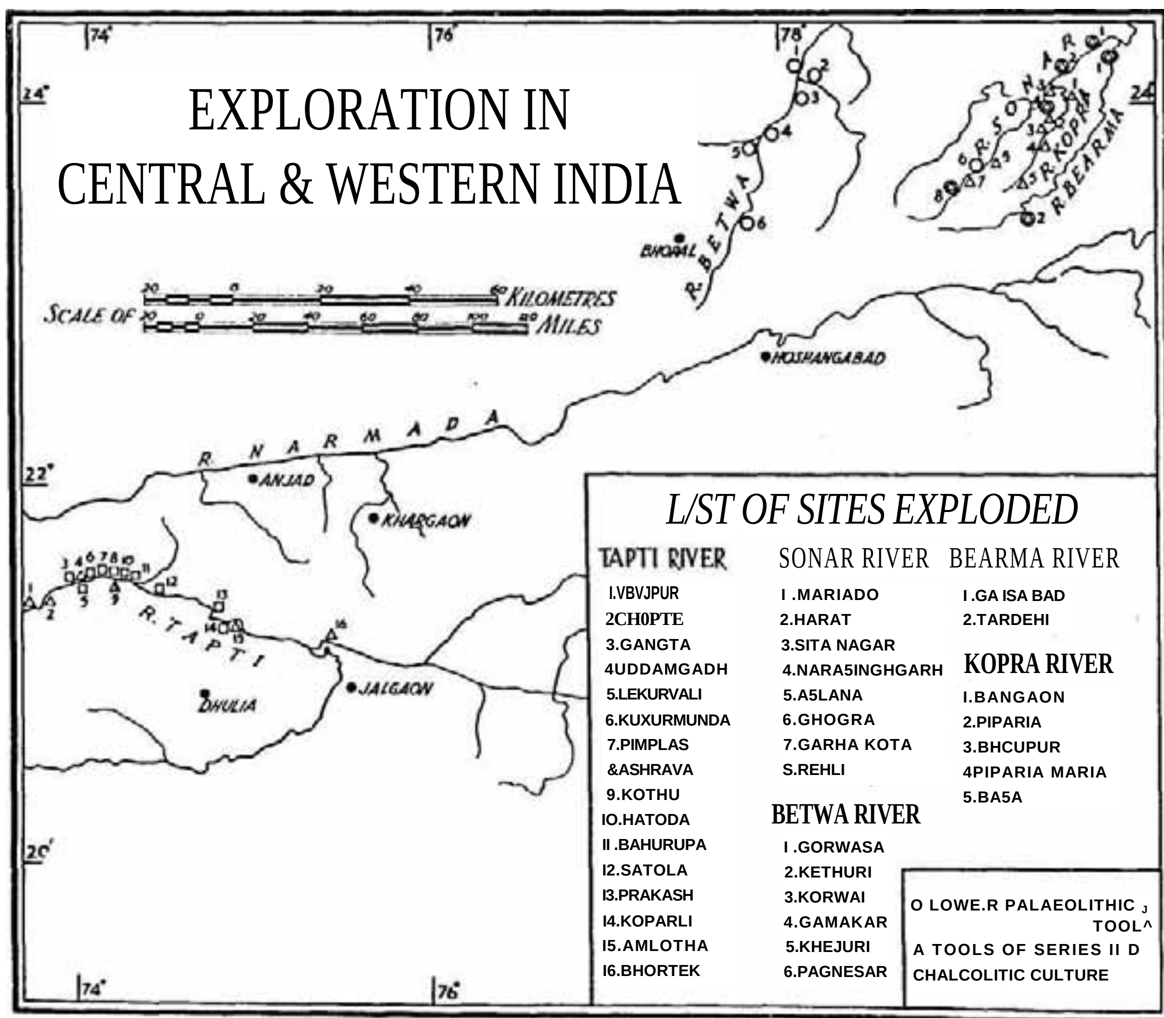


FIG. 11

Of the pottery (fig. 12) the most common was the black-painted red ware. Besides the designs common on chalcolithic pottery, mention may be made of intersecting arches, arrows, horizontal lines (on the corrugated stem of a dish-on-stand), chequers,

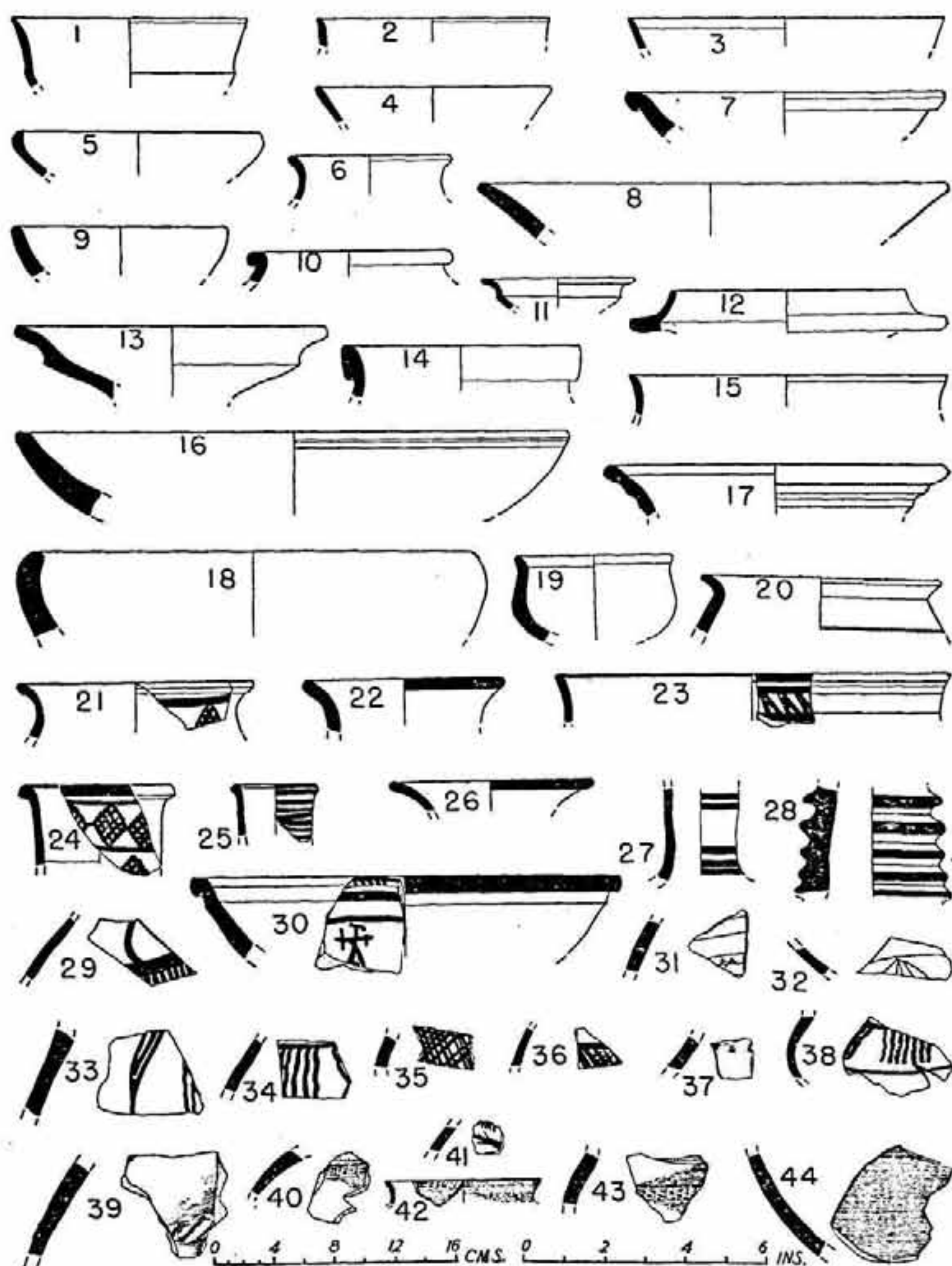


FIG. 12. *Tapti valley: pottery-types*

three horizontal lines with leaf-shaped strokes at the end, stylized human figures and frieze of birds.

Associated with the black-on-red ware were the black-and-red, black-and-grey and burnished grey wares, the last both in thin and thick fabrics. A fragment of a miniature black-and-grey jar from Koparli was painted with a whitish pigment on the interior of the mouth with oblique short strokes. The sherds of thick greyish ware of coarse fabric from Satola represented jars with splayed-out flanged rims, painted with a band in red. A few sherds of the red 'vesiculated' ware, mainly represented by jar-fragments, were found at Hatoda.

The richest collections of microliths, on chalcedony or allied siliceous material, occurred at Pimplas, Bahurupa, Satola and Koparli; they consisted chiefly of fluted cores with single or multiple striking-surfaces and of a few with the crested ridge. Together with these occurred a few parallel-sided and occasionally backed blades, points, crescents and crested-ridge flakes (pl. XXVI B).

Shri S. A. Sali, of the South-western Circle of the Department also found palaeolithic tools at Vyaval, Korat, Samsherpur, Bamdod, Nabavad, Kumbharpada, Dhanora, Borda, Bandarpada, Joglipada, Bardipada, Navalpur, Bhilshavali, Shilpada, Mohlipada, Beripada, Shala-Pamkatla, Ranikhadkula, Tapikhadkula and Raigarh. The last-named site, at the foot of a hill, deserves special mention, for it was a rich open station, where over three hundred tools, mostly on flakes of haematite, were picked up from the surface. The collection consisted of a couple of bifacial handaxes on core and scrapers, tranchets, ovates, points, etc., on flakes. At Vyaval tools of Series II were found in the river-bed, while at Korat they were obtained from a stratum of uncom-pacted sand underlying the yellowish silt.

At Dhulia, on the Panjra, two palaeoliths—a handaxe and a scraper—were obtained from the patchy conglomerate-bed and microliths of jasper from the deposit of reddish sand.

Microliths were collected from cultivated fields, with light-brown to black soil, at Samsherpur, Bamdod, Kumbharpada, Bandarpada, Joglipada, Bardipada, Navalpur, Korat, Bhilbhavali, Nasarpur, Beripada, Ramkutla, Ranikhadkula, Tapikhadkula, Wadli and Khairawada.

Savalda, Korat, Hingir, Sulwada, Vyaval, Bhavanipada, Borda, Dhanora, Nasarpur, Khairawa and Tapikhadkula had chalcolithic remains. The first two yielded a distinct group of painted ceramics which differed in fabric, shape and painted motifs from the normal chalcolithic pottery of the region. In contradistinction to the Jorwe Ware, with a wash, this pottery, of medium to coarse fabric, was treated with a light-brown to pink or buff slip. The painted motifs comprised, besides linear patterns, stylized fish, peacocks, arrows, arrow-heads, flying birds, etc. The common types were the high-necked jar with a square body and beaded, thickened or slightly outcurved rim, basin, dish, trough and bowl.

At Savalda was also discovered a chalcolithic burial.

At Dhulia were found sherds of black-on-red and grey wares, characteristically chalcolithic, along with the later black-and-red ware. The site appeared to have had a medieval occupation as well.

On the left bank of the Panjra, near Dhulia, was noticed a chalcolithic burial-site with the typical painted pottery.

Early historical sites with black-and-red pottery were found at Bamdod, Shala and Nasarpur. Sherds of the Red Polished Ware were picked up at Korat and Vyaval.

An interesting collection of flakes of a hard trap possessing columnar joints was made from the cultivated fields at Vajpur and Kothali, though no regular tools

were found at either place. The flakes from Vajpur (pl. XXVII A) had a heavy greyish yellow patination and included parallel-sided flake-blades with tiny, plain and obtuse-angled striking-platform and showed a primary longitudinal flaking. Also with them were subtriangular flakes and struck cores. The flakes from Kothali (pl. XXVII B) consisted of subtriangular, ovoid and long flake-blades, concave scrapers and a few core-remnants, a few of them showing a slight retouch. They compared well with those from Phases I and II of Sangankallu and might be remnants of neolithic factory-sites.

DELHI

19. EXCAVATION AT LAL-KOT, DELHI.—The North-western Circle of the Department, under Dr. Y. D. Sharma, resumed excavation at Lal-Kot to ascertain the relationship of the inner wall exposed last year *(1957-58,* p. 24) with the outer fortification and to obtain precise information on its structural phases.

Excavation to the west of Adham Khan's tomb at the junction of the Lal-Kot wall and the inner wall exposed last year revealed that the recently-exposed wall formed part of an earlier citadel, as the high wall of Lal-Kot abutted right against it (pl. XXVIII A).

The inner wall showed at least two important phases, apart from repairs and reinforcements made from time to time. Of an average thickness of 8 to 10 ft. at the base, it was built with rubble stone with a rugged face on both sides. Underlying but of the same build was a footing, which projected 4 to 5 ft. on the exterior in the manner of an apron. A regular brick-revetment, now surviving in short patches, was raised on it; but whether it was part of the original planning or was an afterthought was not sufficiently clear, although the former alternative was more probable. The 5-ft. wide passage exposed last year appeared to be the space originally occupied by the footing and the brick revetment superimposed on it but subsequently robbed. Later in the life of the city, the regular brick face was concealed behind a freshly-raised, elegant and impressive veneer of dressed local quartzite blocks. This veneer bore evidence of considerable planning. The undulating surface of the bed-rock was first brought to different running levels over convenient stretches by brick or stone construction. Long blocks of stone, a large number of them wedge-shaped, were then laid on the prepared surface in the header fashion; the outline of the plan on which the exterior of the dressed stone veneer was to rest was engraved on the foundation-surface; and finally the veneer, with its stones tied with iron dowels, was raised. The gap between the earlier brick-face and the later stone-face was filled with earth, gravel, brick or stone. The veneer was provided with semicircular bastions at irregular intervals ranging between 45 and 70 ft. (pl. XXVIII B).

The clearance of the Lal-Kot walls to the east of the Qutb-Minar commenced last year was also continued. The original fortifications were found disturbed, but it was noticed that the missing superstructure rested on a base of long stone blocks, marked here also with the outline for the facade of dressed stone exterior. It appeared that the inner citadel of Lal-Kot had been more compact than hitherto believed, and that the high wall pierced by Ghazni and Ranjit gates was a later construction, thrown up for purposes of defence or to enclose within a city-wall the extensions of the township occupied by the common folk.

The ruins of later houses, mostly of stone, abutting against the stone veneer showed poor construction; but among them could be identified a lane giving access to houses on both sides.

HIMACHAL PRADESH

20. EXPLORATION IN DISTRICT BILASPUR.—Dr. A. P. Khatri of the Council of Scientific and Industrial Research undertook a survey of the Siwaliks in District Bilaspur and District Hoshiarpur (Panjab) for the study of the terrace-system of the Sutlej and correlation of the palaeoliths with the terraces (also p. 40) and found more than one hundred fossils, mostly dentitions, near Haritalyngar. *Dryopithecus* and *Sivapithecus* fossils had been found in the region about half-a-century back.

MADHYA PRADESH

21. EXPLORATION IN DISTRICTS BHILSA, DAMOH AND SAGAR.—The Pre history Branch of the Department, under Dr. R. V. Joshi, explored the valleys of the Sonar, Kopra and Bearma (fig. 11, p. 22), in the course of which fifteen new sites yielding Lower Palaelithic tools and tools of Series II were discovered. At Rehli and Ghogra on the Sonar, twentyfive implements were recovered *in situ* from a highly-cemented gravel-bed. They comprised a handaxe, an ovate, six cleavers and two scrapers—all made on flakes,—six unworked flakes, seven bifacial choppers and two cores on pebble (pl. XXIX). Although occurring in the same horizon, they could be distinguished typologically as crudely- and finely-worked specimens, respectively twenty and five in number, indicating the Abbevillian to Mid-Acheulean stages.

The tools collected from the loose gravel in the river-beds consisted of pebble handaxes, unifacially-worked handaxes on pebble flakes, crudely-flaked cleavers on flakes (pl. XXX), a large number of pebble choppers, mostly bifacial, cores and a few flakes with high-angled plain striking-platform: collectively, the industry represented the Abbevillian technique. The raw material used in the fabrication of the implements was the quartzite pebbles of Vidhyan formation that are available only in the upper reaches of these streams.

The tools of Series II, comprising a variety of scrapers, flakes and unifacial points worked on chert, occurred usually in the loose gravel. Only a few specimens were found in a partially-consolidated, fine-grained and cross-bedded gravel at Khoja-kheri and its neighbourhood on the Kopra. From the nature of its components and structure this gravel appeared to be a redeposited material.

In the survey of the Betwa in Bhilsa District, from Bhilsa to Mungaoli, six Stone Age sites were brought to light. In the examined course of the river, the stratigraphy was not clear, as the gravels were much disturbed. Only at Pagnesar a compact gravel was noticed resting on the sandstones, which yielded a few implements consisting of cleavers, handaxes and flakes made on quartzite. This region was interesting in view of the occurrence of lateritic deposits.

22. EXPLORATION IN DISTRICT BHIND.—Shri M. P. Shrivastava of the Central Circle of the Department discovered several ancient sites in Lahar Tehsil. Notable amongst them were Barehat, Daboh, Jamuha, Kaitha, Mehara-Buzurg and Sirsa (Itaura), where, in addition to the Northern Black Polished Ware, black-and-red ware was found. The Painted Grey Ware, along with the N. B. P. Ware, was discovered at Barata, this being the first site to yield this Ware in this region. At Rur microliths and a coarse red pottery were found.

23. EXPLORATION IN DISTRICTS HOSHANGABAD, NARSINGHPUR, RAISEN, SHAHDOL AND SEHORE.—Dr. A. P. Khatri of the Council of Scientific and and Industrial Research, in the course of his investigation in the upper Narmada basin from Amarkantak to Harda, besides visiting all the thirteen sites mentioned by De Terra, discovered thirtyfive fossiliferous and implementiferous sites, some of them with instructive sections and extensive deposits of cemented gravel. From these sites more than one thousand palaeoliths, about one hundred and fifty of them *in situ,* and about two hundred mammalian fossils were recovered.

At Ajhera and Bhatgaon, two complete skulls of *Elephas hysudricus,* with their molars and tusks intact, were found *in situ* in a huge deposit of cemented gravel. Near. Sandia, tools of Series II were found in a gravel in which these fossils were also found *in situ.*

The following tentative results, different from De Terra's, were arrived at: (1) Laterite does not occur just below the Mid-Pleistocene gravel either at Tugaria or at any other place on the Narmada between Jabalpur and Harda. (2) No regular formation occurs below the Black Cotton Soil to be named as its basal gravel as done by De Terra in giving a cyclic picture of deposit-formations in the Narmada. Even Gravels I and II seem to be the same overlying the red Concretionary Clay, though this observation requires further examination. (3) Mammalian fossils occur only in Gravels I and II and not in any clay lying in between or over them. (4) Palaeoliths are limited to Gravel I only: red Concretionary Clay has not so far yielded any tool. There is nothing like a stratigraphic evolution in the Narmada palaeolithic industry.

24. EXPLORATION IN DISTRICT INDORE.—Shri R. B. Narain of the Central Circle of the Department discovered microliths, unassociated with pottery, at Janapav, Choral, Hatyarakoh, Keoreswar, Hingwania and Tinchha. Microliths, in association with the black-and-red, black-and-cream or grey ware, were found at Kanaria, Marod, Undel, Khagaria and Hatod. At Narwar, Panod and Arandya, the black-and-red ware was found but not the black-and-cream or grey ware.

25. EXPLORATION IN DISTRICT JABALPUR.—Shri C. B. Trivedi of the Central Circle of the Department discovered stone tools in the valleys of the rivers Mahanadi, Kulhar, Gaur, Hiran and Tamer, all tributaries of the Narmada. The tools included: Series I tools, from Negai, Kashtara, Jamgaon, Kundan and Dargarh; Series II tools, notably from Kundan, Lakhanvara, Supawara, Dargarh, Chhirpani, Sarangpur, Bisanpura, Saroli, Chaurai Kalan, Chaurai Khurd and Doonda; and microliths, consisting of blades, crescents, scrapers and cores, from about twenty sites, including Marai Kalan, Marai Khurd, Sakri, Chhita Khudri, Kahnwara, Sakra, Tamer and Rima. Conch-shells embedded in conglomerate were discovered in the basins of the Gaur and Gango at Jamgaon, Amera, Rampuri Kalan and Kashtra, in association with tools of Series I and II.

26. EXPLORATION IN DISTRICT MANDASOR.—In continuation of the work done in previous years *(1956-57,* p. 11; *1957-58,* p. 26), the Department of Archaeology of the Government of Madhya Pradesh, under Dr. H. V. Trivedi, assisted by Shri V. S. Wakankar, explored the Chambal valley and noticed palaeoliths at Jalod (which was also a chalcolithic site), Shankhudhar, Modi, Kedareswar, Hinglajgarh and Indragarh. Except the first two of these places, all were noted to contain rock-shelters with paintings, which were also noticed at Sitakhardi (pl. XXXI). A chalcolithic site was found at Manoti, 5 miles from Shankhudhar; it also contained three ring-wells.

27. EXCAVATION AT INDRAGARH, DISTRICT MANDASOR.—Dr. H. V. Trivedi, assisted by Shri V. S. Wakankar, also excavated at Indragarh, an ancient site about 3 miles north-west of Bhanpura, to exhume the remains of a Siva temple built, according to a stone inscription found at the site, in A.D. 709 in the time of the Rashtra-kuta ruler Nannappa. The work is in progress.

Excavation revealed, apart from the partial plan of the temple, stone images and parts of the structure like dressed blocks of stone, carved lintels and pillars, plinths, jambs and spires of different dimensions, some complete and others fragmentary, and three mutilated inscriptions, one of them belonging to the thirteenth century. The smaller antiquities consisted of beads of glass and stone, fragments of bangles of ivory, shell and glass and arrow-heads and daggers of iron. This magnificent temple must have stood till the twelfth-thirteenth centuries, being augmented by subsidiary shrines from time to time.

The images found in the excavation included those of Siva, Parvati, Bhairava, Surya, Nandin, Vishnu, Varahi in human form and Kuvera.

A brick structure, 4-ft. square on plan, appeared to be a sacrificial pit (*homa-kunda)* from the ashes, charred grains and similar substance found in it.

A small trench, 3 furlongs to the north-west of the temple, resulted in the discovery of fluted cores, flakes and blades of jasper, agate, chalcedony and other fine-grained stones locally available, with pottery. The locality was noticed to have been at some stage a bead-making factory, as the find of a number of unfinished beads of different stones and fragments of a lidded pot, associated with sandstone grinding slabs marked by long and deep grooves, would indicate.

Another trench, a furlong to the east of the temple-site, was excavated down to a depth of 17 ft. It revealed parts of structures belonging to the eighth to the twelfth-thirteenth centuries. The small finds consisted of terracotta objects, fragments of bangles of glass, ivory and shell, cowries, stone weights, beads of carnelian, jasper, quartz, glass and terracotta, a small and thin gold image appearing to be that of a sage, a similar but broken silver image, two gold ear-rings studded with precious stones and iron objects like spear- and arrow-heads, besides pottery. Two badly-preserved human skeletons, together with the iron objects found here and in the vicinity of the temples indicated that a battle must have been fought here.

28. EXCAVATION AT MODI, DISTRICT MANDASOR.—The rock-shelters at Modi, 7 miles to the north-west of Bhanpura, bear rock-paintings *(1957-58,* p. 26) of human and animal figures and geometric designs in red ochre (fig. 13). A small trench excavated in the shelter by Dr. H. V. Trivedi, assisted by Shri V. S. Wakankar, showed eight layers, yielding a large number of lithic tools, consisting of triangles, luates, flakes and blades, mainly of chalcedony, a coloured stone and haematite-coloured granules, together with a few pieces of pottery.

29. EXPLORATION IN DISTRICT NlMAR (EAST).-Shri C. Krishna of the Central Circle of the Department discovered microliths at Ghandwa, Mundi, Richpal, Kamri, Ratanpur, Lakkangaon, Nandhkheda, Mosai, Kirgaon and Hardi, all in Khandwa Tehsil.

30. EXPLORATION AT MAHESWAR, DISTRICT NlMAR (WEST).—Dr. H. D. Sankalia of the Deccan College Post-graduate and Research Institute, Poona,

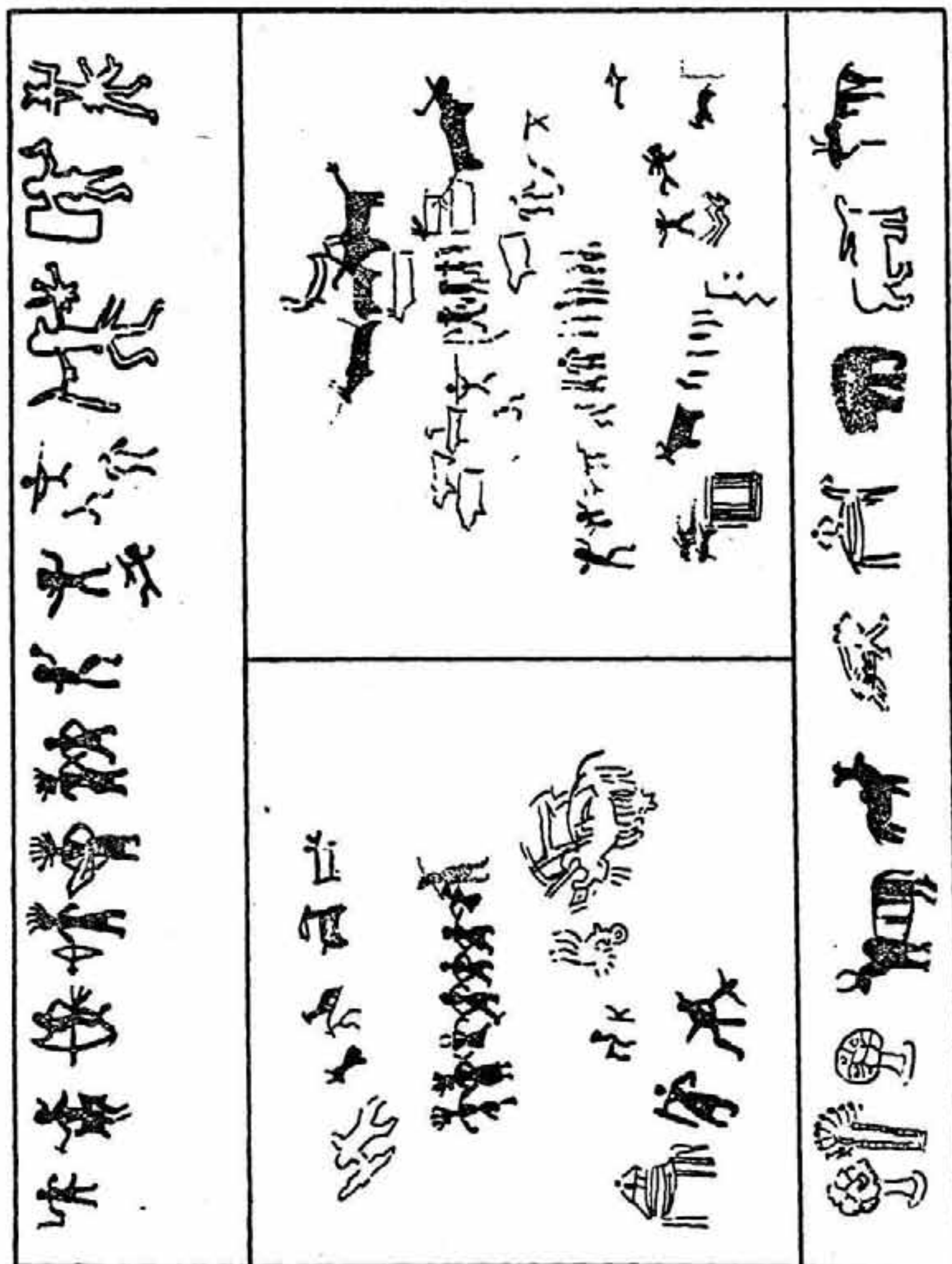


FIG. 13. *Modi: paintings in rock-shelters*

and Dr. B. Subbarao of the University of Baroda continued their study of the river-terraces of the Narmada in the Maheswar region *(1957-58,* p. 78J. Further evidence of the remains of at least three terraces was obtained on both banks of the Narmada. The deposit in the lower 15 to 20 ft. of the 80-ft. high Terrace I was found to consist of a large pebble gravel, containing tools of Series I, viz. large and small flakes, cleavers, and occasional handaxes, besides huge cores; the upper part of the Terrace was made of fine yellowish silt.

The lower part of Terrace II, about 60 ft. high, consisting of small trap-gravel and sand, highly calcareous and fairly well-cemented, yielded tools of Series II. The upper part of the terrace was formed of dark-brown silt. The terrace, along with the gravel, was found to be well-exposed on the southern side to the east of Maheswar, near the village of Kathora, for nearly half-a-mile and gave a number of tools of Series II *in situ.* Here the gravels rested directly on the earlier pebble-gravel of Terrace I.

31. EXCAVATION AT NAVDATOLI, DISTRICT NIMAR (WEST).—Excavation was resumed *(1957-58,* p. 30) by the Deccan College Post-graduate and Research Institute and the University of Baroda with the co-operation of the Government of Madhya Pradesh; the first was represented by Dr. H. D. Sankalia, Dr. S. B. Deo and Mr. Z. D. Ansari, the second by Professor B. Subbarao, Mr. S. C. Malik and Dr. R. N. Mehta and the third by Dr. H. V. Trivedi.

Three large trenches and a small one were dug down to the natural soil, confirming the picture of the settlement obtained last year, viz. that of a village consisting of closely-set mud-timber houses. The village was rebuilt at least ten times; thrice it was destroyed by fire, the one occurring towards the close of Phase II being the most extensive, as it left a thick layer of burnt debris all over the site. On the basis of the different layers of burnt debris, correlated with ceramic industries, the occupation could be divided into four Phases (pl. XXXII A), each Phase associated with distinctive fabrics, shapes and painted designs of its pottery.

In the previous season, remains of several round, square and oblong houses had been found. In Phases I and II the floors were, as a rule, made of lime. One of the houses, of Phase I, located right on the black soil, was large in dimensions; from the size and number of post-holes on the floor, it appeared that it must have been a substantial house built with heavy timber. Another house of the same Phase had its floor partially burnt red. An interesting feature was a pit, 7 ft. x 6 ft. x 7 ft., neatly cut into the floor with bevelled sides (pl. XXXII B). All round there were post-holes; on either side, at some distance, were a pot-rest made into the ground and possibly the remains of a single-mouthed hearth. Inside the pit were found two logs of wood, placed almost at right angles to each other, and fragments of two unique pots, each with a splayed-out rim, a high corrugated neck, a ribbed oval body with one or two incised bands filled with lime and a hollow pedestal-base (pl. XXXIII A and B).

The plan of a number of houses of Phase III could be made out from the stumps of charred posts. Generally, each room measured 10 ft. x 7 ft. In one case an oblong mud wall enclosed the houses of this Phase, the plans of which changed very often. The walls or roofs, or both, of the houses had bamboo-matting plastered with clay and whitewashed.

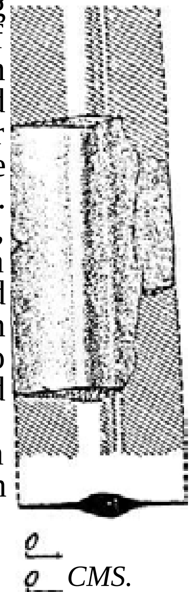


FIG.14 *Navdatoli:* copper sword or dagger

A few objects of copper and thousands of chalcedony blades were found as before. Among the former, the most interesting -was a fragmentary sword or dagger with a raised mid-rib (fig. 14). Nothing like this

has been found in the Harappa civilization, but comparable types occur in Iran and elsewhere.

In the pottery, the most frequent group, common to all the Phases, was the 'Malwa Ware', a pale red-slipped ware with paintings in black. In the earliest Phase only a few shapes and designs existed (pl. XXXIII C and D); they, however, became more varied later on (pl. XXXIV). The cup, dish and bowl, on a stemmed pedestal (pl. XXXV), and the vase with a high concave neck and a bulging body (pl. XXXVI A) were recurrent forms right from Phase I.

Confined to Phase I was a sprinkling of a white-painted black-and-red ware, forming the second group; it genearlly comprised the bowl with gracefully-inturned sides and the cup. It seems definitely to be an import from Rajasthan, where, at such sites as Ahar, it occurs in profusion.

The third group was represented by the white-slipped ware (pl. XXXVI B-D), confined to Phase I. It had several gradations in slip and texture, the finest specimens being smooth, lustrous and greenish-white. Though it copied some of the shapes of the Malwa Ware (pl. XXXVII A), its distinctive shapes were a shallow dish with a broad flat rim and stand and a high concave-sided bowl carinated at the waist (pl. XXXVI B). (An almost complete specimen of the latter with a fine white slip recalls a similar pot from the earliest period of Sialk in Iran.) A band of running antelopes and a group of dancing human figures seemed to be the characteristic painted designs on this ware, besides a number of other designs it shared with the Malwa Ware.

In Phase III appeared for the first time the Jorwe Ware, but with a limited number of shapes and painted designs (pl. XXXVII B). It was also during this Phase (and not in the next Phase as stated in *1957-58)* that a distinctive type, the channel-spouted bowl, in Malwa Ware occurred. A complete specimen found this year (pl. XXXVII C) left no doubt about its function: as it was without a handle, it could only be held on both the palms and its liquid contents poured slowly, as if in a ritual. In order to control the flow of the liquid a hole was sometimes made at the junction of the spout and the body (pl. XXXVII D)—a contrivance also seen in western Asia.

The presence of such bowls in Phase III may imply contacts with Iran, but some other local pots, such as the cup and bowl on a stemmed pedestal, which occurred from the very beginning and which are also in Iranian shapes, would suggest their manufacture by a people who were used to them and had seen them in Iran. This would point to an Iranian penetration in central India. Carbon-14 datings, furnished by the Physics Department of the Pennsylvania University, of five samples from Phases III and IV vary from 1631 to 1375 and from 1419 to 1169 B.C. The first occupation of the site might therefore go back to nearly the beginning of the second millennium B.C.

MADRAS

32. EXPLORATION IN DISTRICT MADURAI.—Shri K. V. Raman of the the Southern Circle of the Department found a large number of sites in the course of his exploration in the District.

Microliths, including rectangular scrapers, cores with ripple-flaking and waste flakes and cores, were found at Tangalacheri, Sivarakkottai, Tirumanikkam, Alampatti and T. Kallupatti, all in Tirumangalam Taluk. At all these places also occurred painted black-on-red and red and black wares. .

Pottery with white paintings and dots on a black surface and with painted criss-cross pattern was also found at T. Kallupatti.

Cairn-circles were found at Prayer and Gopalapuram. Dolmens were noticed at Mallapuram and urn-burials at Sangappadai, Tangalacheri, Madippanur, Sivarak-kottai, Kottaimedu, Amattiapatti, Periakattalai, Vandari, Parapatti, Tirumanikkam, T. Kallupatti and Velambur. Etched carnelian beads were found in a disturbed urn at Sangappadai.

Later habitation-stites were noticed at Perumalpatti, Mattakari, Kalligudi, Velambur and Tirali. At the first site copper coins of Rajaraja I were found.

MYSORE

33. EXPLORATION IN DISTRICT BIJAPUR.—Shri A. Sundara of the South western Circle of the Department discovered tools of Series II—scrapers, points, etc., mostly of jasper—at Chanegaon. A factory-site of the chalcolithic blade-industry was located at Hingni on the right bank of the Bhima, on which were also found chal-colithic habitation-sites at Bhuyar, Chikmannur (which also had four megalithic stone circles), Hingni, Anachi, Umraj, Nagarhalli and Chanegaon, all rich in microlithic blades along with fluted cores, the Jorwe Ware and grey ware similar to that from Brahmagiri. Anachi, Hathalli and Nagarhalli also had fragments of neolithic implements, while at Hingni was found a thick-slipped coarse grey ware with crude paintings in ivory black.

Thick coarse grey ware, with a negligible proportion of Jorwe Ware, associated with ribbon flakes of chert, was found at the following sites, all on the banks of the Don and its tributaries : Nivalkhodi, Kannoli, Othikal, Mannur, Devur, Bhudihaldon, Hondguli, Madbhal, Antargaugi, Jalpuri, Marihal, Byakod, Gubewad and Borgi.

Antiquities of the early historical period, including a coarse red-slipped ware, the Russet-coated Ware and Red Polished ware, were found at Hathahalli, Musalvadi, Yarual, Hippargi, Kauroli, Vaskannalli, Chikallapur and Yalgod.

34. EXPLORATION IN DISTRICT DHARWAR.—Shri M. S. Nagaraja Rao of the South-western Circle of the Department found a few palaeolithic implements in a field on the bank of a nullah at Jallapur. Neolithic tools, probably of the chalco lithic complex, were discovered at Jallapur, Channur, Mannur, Tallihalli, Kadarman-dalgi and Tadao.

A chalcolithic site with thick coarse grey ware, similar to that of Brahmagiri, was found at Madapur.

Megalithic stone circles were found at Bidarkatti, Sidenur, Chinnikatti, Ker-wadi and Udagatti and dolmens at Kadarmandalgi.

Early historical sites, with the typical Black-and-red Ware, the Russet-coated Ware and dull red-slipped ware, were located at the following places: Handignur, San-gur, Hosritti, Mannur, Haralhalli, Tallihalli, Kanchargatti, Kolur, Narasipur, Tadas, Sidenur, Anur, Kadarmandalgi, Motibennur, Belkeri, Kummur, Madapur, Honatti, Yattinhalli, Gudgur, Kudrihal, Hildahalli, Belur and Udagatti.

35. EXPLORATION IN DISTRICT MYSORE.-Shri C Krishnamurthi of the Southern Circle of the Department found a neolithic site at the confluence of the Kaveri and Kapila, about a furlong to the south of Kandanakoppal, whence two axes were recovered.

An extensive habitation-site at Kaveripuram in T. Narasipur Taluk yielded a black ware, red ware and the Black-and-red Ware.

36. EXCAVATION AT T. NARASIPUR, DISTRICT MYSORE.—The Department of Archaeology, Government of Mysore, under Dr. M. Seshadri, excavated the site on the left bank of the Kaveri, mainly with the purpose of determining the culture-sequence in the upper Kaveri valley. Altogether, eleven trenches were excavated and the natural soil was reached at an average depth of 7 ft. Two Periods were revealed.

Period I was distinguished by the typical neolithic pottery, notably a thick burnished grey ware. A few burnished sherds in orange-red and brown also occurred; some of the orange-red ones had curved lines in violet and some of the grey ones incised ornamentation. Throughout the Periods a typical clay object, called by Foote 'neck rest', was common. A type of thin burnished grey pottery with its lip painted in red ochre, met with in the chalcolithic layers at Bahal, was commonly found in the early layers, which also had two examples of channel-spouted vessels in coarse greyish ware. The lipped bowl in coarse grey or buff ware, similar to the one found at Brah-magiri, occurred frequently. Neolithic implements, such as polished stone axes and pounders, occurred in considerable numbers, but there was no trace of copper. Except for a single fluted core recovered from an early stratum, microliths were absent.

Period II represented a full-fledged culture with the typical megalithic Black-and-red Ware. In all trenches occurred fairly large-sized pits containing animal bones and black polished pottery, typically megalithic, and red polished and the usual dull-red and black pottery (pl. XXXVIII A). Only one iron implement, a piece of dagger, was found. The megalithic pottery was particularly noteworthy for its high polish, rich colour, varieties of shapes and abundance of graffiti.

There was no definite occupational deposit overlying the megalithic, but a few pieces of the typical russet-coloured pottery with kaolin decoration were collected on the surface. It seemed possible that the evidence for the culture had been washed away by flood.

Polished stone axes were collected from the river-section (pl. XXXVIII B).

ORISSA

37. EXCAVATION AT RATNAGIRI, DISTRICT CUTTACK.—Last year's excavation at the site *(1957-58,* p. 39) had exposed a large-sized brick *stupa*. This year, the mound, locally known as Rani-pukhuri ('the queen's tank', from its contours, formed by a central depression surrounded by high mounds), lying to the north of the *stupa* on the same hill, was taken up for excavation by the Eastern Circle of the Department, under Shrimati D. Mitra.

Excavation revealed two full-fledged monasteries which, notwithstanding their normal monastic plans, had several remarkable features. Lying adjacent to each other, the western wall of the eastern monastery, Monastery 1, was separated from the eastern wall of the western one, Monastery 2, by a passage, 11 ft. 5 in. wide. Both faced south.

The building proper of Monastery 1 (pl. XXXIX), roughly 180 ft. square, had a *pancha-ratha* projection at the front to provide for the elaborate entrance (pl. XL A). Faced by a stone-paved forecourt, the front porch in between two pylons was entered into by a flight of steps. The side-walls of the porch each had near the base a central projection on which was placed an image, of Vajrapani in the east and of Lokesvara in the west.

The inner wall of the porch had a beautifully-carved door-frame of chlorite with a Gaja-Lakshmi on the lintel (pl. XL A). The facade on either side of the door contained khondalite images of deities in different compartments: the extant part

on the west had Jambhala and Lokesvara (pl. XLI A) and that on the east only Jambhala. The *sapta-ratha* projections further to the east and west had, above their moulded parts, niches respectively with figures of Ganga and Yamuna (pl. XLI B), the former missing.

The door led into the inner porch flanked by brick walls, each with a niche; the western one, surmounted by a *khakhara* roof, contained an image of Jambhala in khondalite and the eastern, crowned by a *pidha* roof, of Hariti in chlorite. Beyond the porch was a verandah, flanking the extensive stone-paved inner court, 88 ft. 8 in. square, and separated from it by a stone kerb, upon which rested knondalite pillars, sixteen on each side, to hold the roof of the verandah.

Besides the inner porch and the shrine-chamber, described below, there were twentyfour cells distributed on all the four sides, the eastern and western sides each having seven and the northern and southern six and four respectively.

The shrine (pl. XLII A), on the northern side, was elaborate. Fronted by a porch, its door, though narrow, was profusely decorated with a variety of creeper-patterns and figures, the extant ones representing *dvara-palas,* a Bodhisattva in *varada-mudra* holding a lotus in the left hand on the right jamb and Maitreya on the left jamb, female *chauri*-bearers and *nagas.* The shrine contained an image of Buddha with a plain halo, seated in *bhumisparsa-mudra* on a lion-throne below a *pipal* tree. The image was 11 ft. 9½ in. high (including the throne) and was made of coursed khondalite, the pieces (now reconstructed) found lying scattered (pl. XLII B) in the midst of thick debris. The main figure was flanked by Padmapani and Vajrapani, both monolithic, with back slabs bereft of all ornamentation. A few fragments of bronze images, together with a complete one, were found in the shrine.

The monastery was very solidly built. It was evidently double- or multi-storeyed: a wide flight of steps, with a spacious landing at the turning point, was provided in the south-western corner, which had no cells.

Most of the walls of the monastery showed wide cracks and distortion. Its restoration, which could not have been separated from the date of the destruction by an appreciably long time, was thorough. Its outer, walls, the exterior faces of which must have suffered extensive damage, were reconstructed with roughly-dressed blocks of stone—some of them architectural members—faced with fine ashlar-masonry, the new stonework being roughly bonded with the older brick-core of varying extant thickness. Most of the cells were filled with debris and the outer faces of their front walls were completely rebuilt from their very bases, thus obliterating all traces of doors in most of the cells. New cells, with concrete floors having a plastered surface (pl. XLIII A), were provided at a level higher than the original floors by more than 12 ft. Three of the original cells were, however, left unfilled. The door of the one in the western row was converted into a window; the two, one in the northern row and the other in the eastern, were provided with a one-ringed arched door (pl. XLV B). (The earlier cells, as indicated by three extant doors, had doors with wooden lintels.) Dumped on the floor of the western cell were found hundreds of small sealings of fragile unbaked clay of diverse shapes, sizes and legends, a large number of bronzes and a few porcelain and glass pieces.

The original shrine, together with the court, verandah and staircase, remained in use in this period as well, but the shrine was enlarged by the inclusion of the adjoining portion of the verandah, its facade being brought forward into the verandah by the construction, on either side of the passage, of solid blocks of masonry. The collapsed stones of the facade, including architectural members, secular scenes and decorative motifs—all typical of the Orissan temple—were found littered by hundreds during excavation. A new porch was built at the entire cost of the verandah. Its walls

and niches were embellished with images, most of the extant ones representing Buddha (pl. XLIV A, B and C) and one Vasudhara (pl. XLII C). The entrance-porch was largely reconstructed and embellished (pl. XL B). The monastery in this period must have been even more impressive than the original one.

The next period, one of decay, was mostly represented by a few shabby walls enclosing parts of the northern and western wings of the verandah to convert them into rooms (pl. XLIII B). Other parts of the verandah were utilized as mortar-pits by the construction of low partition-walls. Shells, heaped up in large quanitities in one of these rooms and in the courtyard, seemed to indicate that the walls were intended to be plastered with shell-lime. A heap of tiles (pl. XLV A) was neatly stacked in the courtyard, evidently to be used for roofing the rooms.

There was no direct evidence on the chronology of the monastery. While a large number of inscribed images and slabs were recovered, they had little dating value, as they were lying in the midst of thick debris, representing the collapse of the monastery. But the strong affinity that exists between the sculptural and decorative arts of the doorways of the outer porch at the entrance and of the shrine on the one hand and the early temples at Bhubaneswar, ascribable to the eighth century, on the other, may roughly indicate the date of the establishment of the monastery. Some of the recovered chlorite images are reminiscent of the art of the Sun temple of Konarak of the thirteenth century. Beyond these very general indications, no greater chronological precision is possible at this stage.

Monastery 2 was externally 95 ft. square. The outer faces of the walls above the foundation-levels were decorated with a stepped design, made of projecting bricks. The total number of cells was eighteen excluding the shrine and the entrance-porch, five each on the east and west sides and four on each of the remaining two.

Each cell had a door, with a stone threshold and stone jambs, facing the central courtyard, 30 ft. 8 in. square, with the usual intervening pillared verandah. Whenever the side-walls of the cells reached a height of 6 ft. 2 in. from the floor-level, there were remnants of arches which reduced the width of the cells, for convenience of roofing.

A unique feature of the cells in the eastern and southern rows was the existence in each of an inner anteroom, smaller and with a higher floor than the main cell. Each anteroom had an arched roof and a balustraded stone window (pl. XLV C) opening into the passage referred to above. A drain discharged into the passage from the floor of each anteroom.

Owing to the great damage that the southern wall of the monastery had suffered, the traces of the gate that existed in that wall were scanty: but that it had a decorated gate was indicated by the find of architectural fragments, such as carved lintels and door-jambs, nearby.

The shrine (pl. XLVI A) in the northern wall, just opposite the gate, contained a standing khondalite image, 6 ft. 4| in. high, of Buddha in *varada-mudra,* flanked by small seated figures of the four-armed Shadakshari-Lokesvara and Lokanatha on its left and right respectively.

The more developed architectural features of the monastery, viz. the use of arches, artistic stone windows, etc. indicated a date later than that of the first period of Monastery 1. At the same time, that it was earlier than the second period of the latter was definitely proved by the superimposition of two floors in the lane, the lower one contemporary with this monastery and the upper connected with the stone facing of the western outer wall of Monastery 1.

The bronze objects (pl. XLVII) mainly consisted of images of Buddha, Buddhist deities such as Tara, Jambhala and Yamari, *stupas, chhattras*, haloes, detached

limbs, thrones, decorated pieces, some inlaid with semi-precious stones, a female devotee, etc. Ratnagiri was evidently a centre of bronze casting.

The other important finds included a fairly large number of stone images (pls. XLIV D and XLVI B and C), both in chlorite and khondalite, of Buddha, Lokesvara, Tara, Manjusri, Shadakshari-Lokesvara, Vasudhara, Jambhala, Vajrapani, Arya-Sarasvati and the Dhyani-Buddhas, hundreds of clay sealings, iron objects and stone objects including rotary-querns.

A number of terracotta sealings with the legend *sri-Ratnagiri-mahavihariy-arya-bhikshu-samghasya* (pl. XLVIII A), found in the excavation, indicated that this Buddhist establishment had been known as Ratnagiri, a name which persists even now. It is worth mentioning that Lama Taranatha mentions the monastery of Ratnagiri as having been built near the sea-coast in Orissa in the time of a ruler Buddhapaksha (of unknown identity).

In the course of further clearance of the Main Stupa for purposes of preservation, it was noticed that it had been built directly over the ruins of an earlier brick structure, the south-eastern corner of which was visible. To the east of the Main Stupa was exposed another solid brick structure, *tri-ratha* on plan, each side 32 ft. 9 in. long. It was evidently the base of another *stupa*. Inside it were found five terracotta plaques inscribed with *dharanis* (pl. XLVIII B).

In between the courses of stones of one of the masonry votive *stupas* were found three deposits of relics, respectively consisting of two bronze images, a stone circular slab inscribed with the Buddhist creed and a tiny stone Lokesvara figure. In the core of a small brick *stupa* was found a small urn with charred bones inside, thus establishing its funerary character.

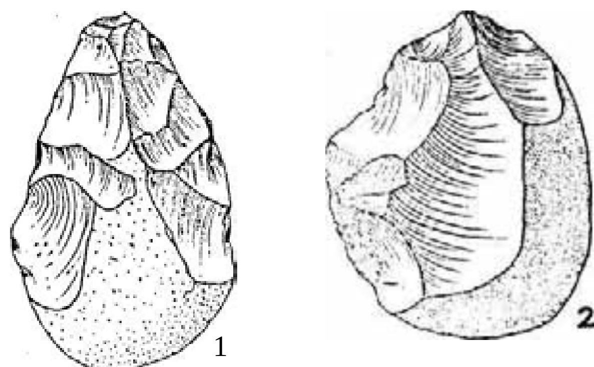
38. EXPLORATION IN DISTRICT DHENKANAL.—The Eastern Circle of the Department undertook an exploration in Kaniha Police Station of Talcher Sub-Division. At Harichandanpur, a site already known for a few palaeoliths, a quartzite bifacial handaxe on pebble, a fragment of a polished celt of phyllite, a neolithic chisel with an oblong section and ground working-edge (pl. XLIX A, *3)* and another roughly-finished chisel, its working-edge broken (pl. XLIX A, *1)*, both of epidiorite, and a fragment of quartzite ring-stone were found by Shrimati D. Mitra. From the same site was picked up an ovate of quartzite by Shri S. Ghosh. Four chisels (pl. XLIX A, 2, and *4-6)*, two of epidioirite, one of dolerite and the fourth of sandstone, were collected by Shrimati D. Mitra from Sardapur, a neighbouring village. Two neolithic chisels (pl. XLIX B), both of basalt, a fragementary quartzite ring-stone and a few microliths, comprising mostly small parallel-sided blades and a fluted core, were discovered at Kaniha itself by Shri S. Ghosh. (The stones have kindly been identified by Shri M. N. Balasubrahmanyam of the Geological Survey of India.)

39. EXPLORATION IN DISTRICTS KEONJHAR AND MAYURBHANJ.—Shri S. C. Mohapatra of the Deccan College Post-graduate and Research Institute, Poona, in continuation of his previous work *(1957-58,* p. 41), explored the valeys of the Baitarani in District Keonjhar and the Khadkei and other rivers in District Malyurbhanj. With the exception of certain local phenomena, the stratigraphic position of the stone industries in Orissa was found to be as follows :

(1) Mottled clay	...	No tool.
(2) Coarse gravel	...	Tools of Series I.
(3) Red silt	...	No tool.
(4) Fine gravel	...	Tools of Series I (late) and II

(5) Red silt ... No tool.
(6) Surface and dry beds of rivers ... Microliths and polished stone celts.

Tools of Series I (fig. 15) comprised bifaces—handaxes, cleavers and scrapers—and choppers and chopping-tools of almost all types showing the different techniques of manufacture and stages of technical development. They were found at Champua and Ramla on the Baitarani, in Keonjhar District, and at Kandalia on the Kandalia-khal, in Mayurbhanj District.



0 . 2. , 4 CMS. O FIG. 15. *Orissa: tools of Series I*

The majority of tools of Series II and all the later tools were found either on the surface or in dry river-beds. Points, scrapers, borers, burins, blades, cores and flakes were the constituent tool-types in Series II (fig. 16). In Keonjhar District such tools were found at Champua, Ramla, Patna and Jagannathpur, all on the Baitarani, and in Mayurbhanj District at Bahalda on the Khadkei, Bisai on the Panposi, Kandalia on the Kandaliakhal, Bahalda on the Barhai and another place of the same name on the Nesa.

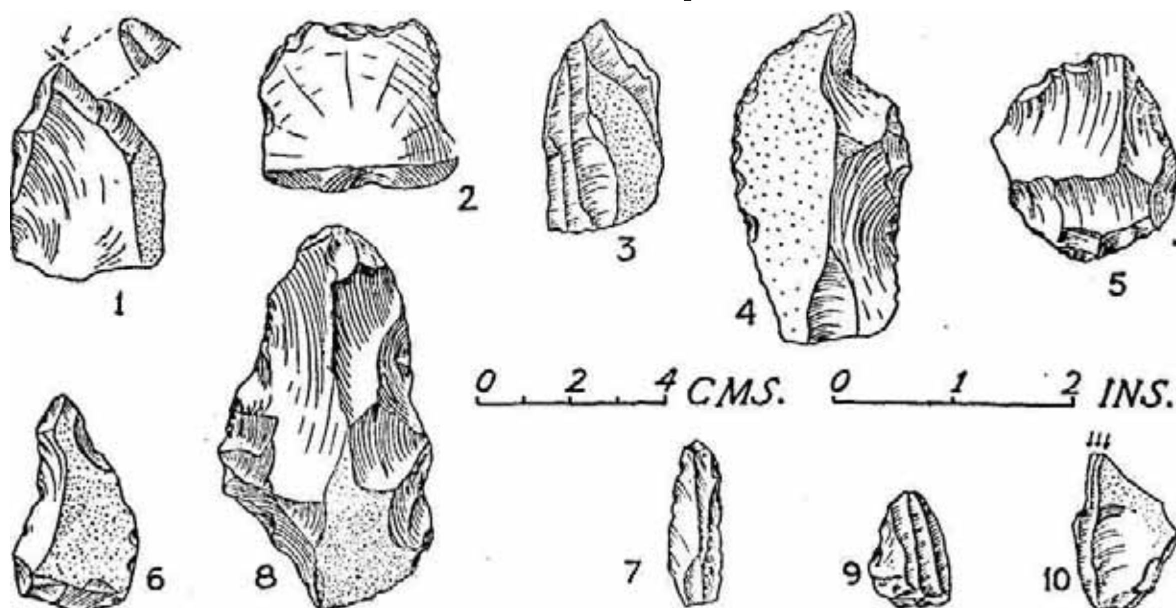


FIG. 16. *Orissa: tools of Series II*

The later tools consisted of microliths, such as blades and scrapers, with fluted cores, and polished stone celts. The majority of the flake-tools showed no previous preparation before they were detached from the core. Microliths were found at Patna on the Baitarani, in Keonjhar District, and at Rairangpur on the Khadkei, Badra- on the Naujora and Bisai on the Panposi, in Mayurbhanj District. Udaipur and Ramla on the Baitarani, in Keonjhar District, were the only places which yielded polished stone celts.

The raw material for tools of Series I was mainly quartzite obtained as river-gravels and suitable pieces of rock from the hill-slopes. Jasper, chert, opal, fine-grained quartzite and, very rarely, chalcedony and agate, accounted for tools of Series II and microliths. Polished stone axes were made of dolerite or shale.

40. EXPLORATION IN DISTRICT MAYURBHAJ.—A large number of neolithic tools from the known sites of Baidyapur, Kuchai and Amsikra, in Sadar Sub-Division, were collected by Shrimati D. Mitra and Shri D. K. Chakravarty, both of the Eastern Circle of the Department; the latter also collected five tools, one of quartzose phyllite at Silipunji and one of quartz-chlorite at Muruda, both in Sadar Sub-Division, two of epidiorite at Jaipur, Kaptipada Sub-Division, and one of epidiorite at Patwa, in the same Sub-Division. A large number of microliths, including parallel-sided blades and lunates, mostly in chert and flint, cores and waste flakes were also found by Shri mati Mitra at Bonaikala, Bamanghati Sub-Division. In type and material they were similar to those from Danguapasi in District Keonjhar (below, p. 73) and Chiadah *1957-58*, p. 69). Tools of Series II are reported to have been found here previously *1957-58*, p. 41). From the same site were picked up an ovate of quartzite and a neo lithic tool by Shri Chakravarty. Four more neoliths and a number of microliths were collected by him from the neighbouring sites of Bara Manda and Radiabindha (pl. XLIX C). He also collected three neoliths from the villages of Pratappur, Haripur and Madhupur, all in Sadar Sub-Division. (Some of the stones have been identified by Shri Balasurbrahmanyam.)

41. EXCAVATION AT UDAYAGIRI, DISTRICT PURL—As the ruins of a laterite structure were suspected at the top of the Udayagiri hill, just overlying the Hathigumpha cave containing the famous inscription of Kharavela of the first century B.C., an excavation of the area was undertaken to expose them by the Eastern Circle of the Department, under Shrimati D. Mitra.

The ruins consisted of an apsidal structure (fig. 17; pl. L A) with an axial length of 78 ft. 1 in., and basal width of 46 ft. Its outer wall, constructed of large laterite blocks, followed the north-west to south-east slope of the hill-top, the maximum number of extant courses being eight. Within the structure, towards its apse-end, was a circular wall with only one surviving course of laterite slabs. Between its outer edge and the inner edge of the former was a minimum gap of 6 ft. The space within the apsidal structure, save that enclosed by the circular wall, was paved with laterite, but towards the northern end, where the sandstone bed-rock was the highest, the rock itself was used as the floor after a rough dressing. Post-holes, circular or irregular, occurred in the rock and in the pavement. From the facts that such post-holes existed in the rock around the outer wall at fairly regular intervals and that a few pottery tiles were found in the northern corner of the building, the existence of a tiled roof resting on posts and having projecting eaves might be conjectured.

In the northern corner of the apsidal structure was a drain fashioned by cutting a channel into the rock and covered by laterite slabs flush with the floor. It was evidently designed to take off water from the circular structure.

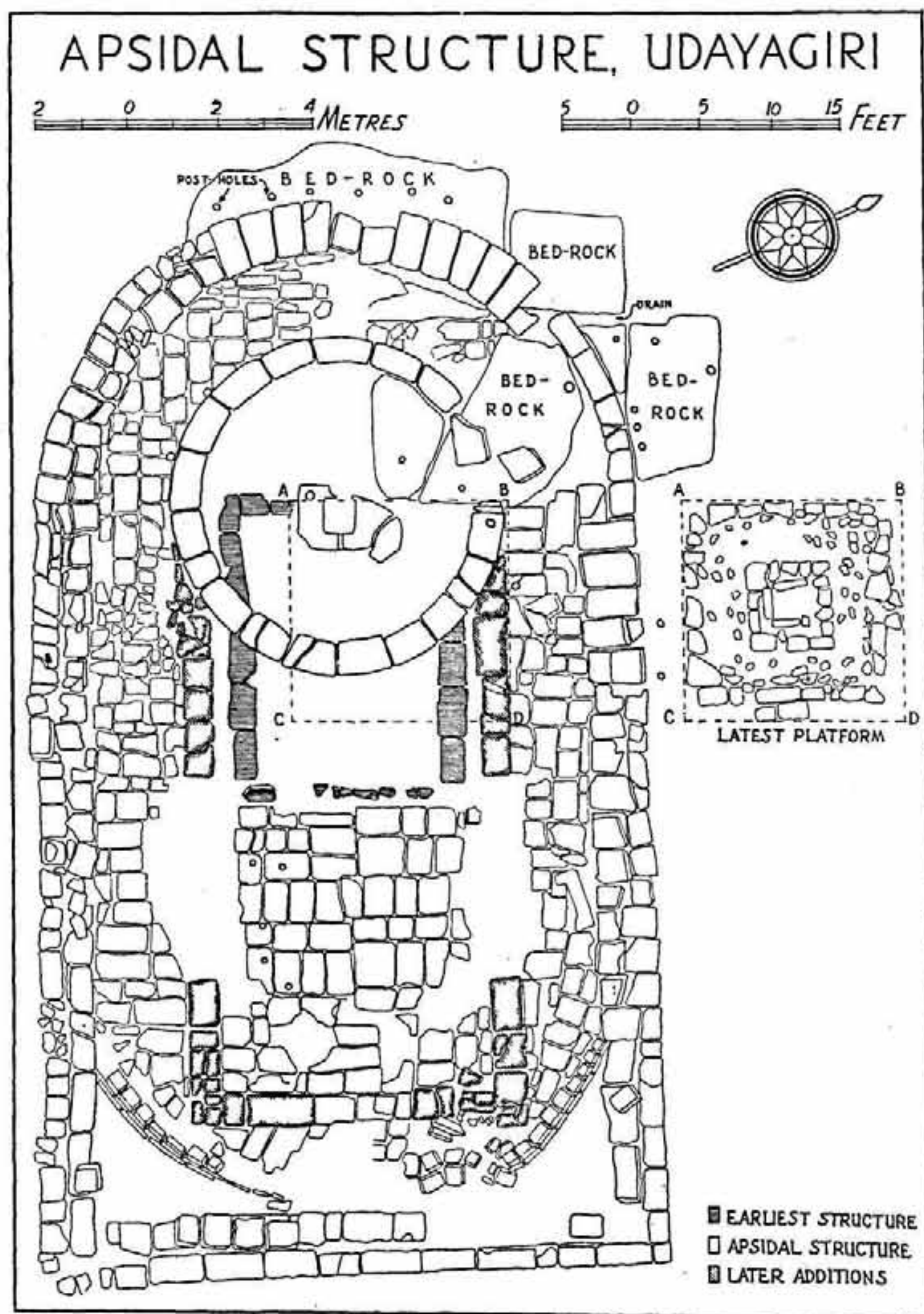

APSIDAL STRUCTURE, UDAYAGIRI
2 0 2 4 METRES
5 0 5 10 15 FEET
POST-HOLES
BED-ROCK
BED-ROCK
DRAIN
BED-ROCK
BED-ROCK
A
B
C
D
A
B
C
D
LATEST PLATFORM
EARLIEST STRUCTURE
APSIDAL STRUCTURE
LATER ADDITIONS

FIG. 17.

At a later stage, the circular wall was converted into an apsidal structure by the addtion of an oblong wall towards its south-east, running roughly parallel to and within the framework of the original apsidal wall. The circular wall was, however, kept undisturbed. The oblong part of the new structure had a wide opening in each of its north-western, south-western and south-eastern walls.

An enigmatic feature, related with the complex but somewhat later in construction, was a semi-circular wall, its ends meeting the inner faces of the outer apsidal structure near its base. It was built of three rows of laterite blocks placed on edge and supporting one another, the innermost blocks being laid obliquely on the old floor.

An earlier oblong structure, evidently unconnected with the complex and partly overlain by the circular wall, seemed to have been the first structure on the site. Its wall had already been reduced to one course of laterite when the circular wall was raised.

Belonging to the last phase of the occupation on the site and of a date when the complex described above had fallen into disuse was a square platform with recessed corners, shabbily built of laterite and sandstone blocks on the debris over the south-eastern quadrant of the circular wall. It had a projection on its south-eastern face to serve as a step. Inside was a smaller square, also built of sandstone and laterite blocks, the intervening space between it and the outer wall being filled with earth.

The pottery found in the filling of the floor was red and ill-baked and rubbed off easily.

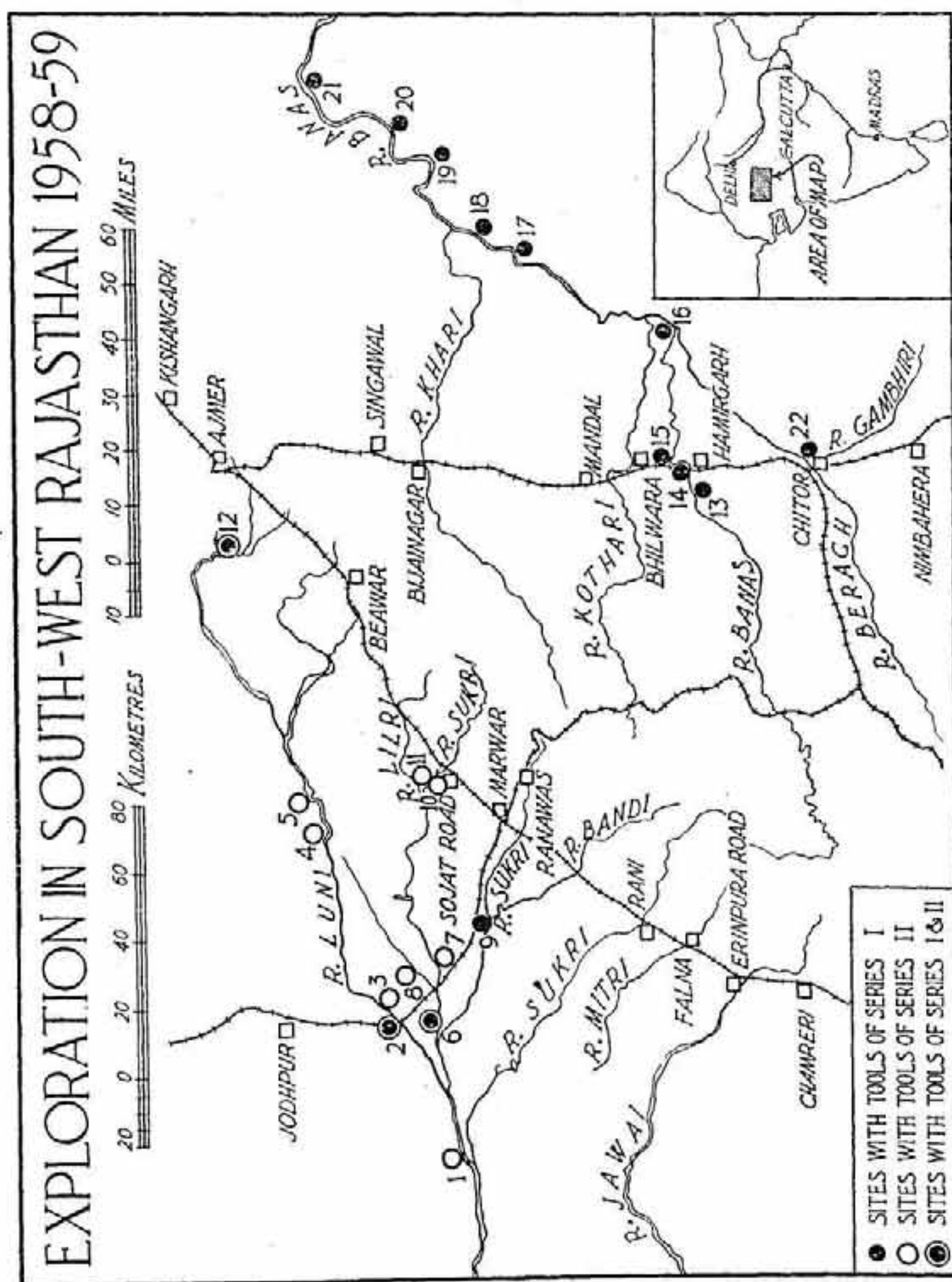
There was no other small find except a dolerite neolithic celt with an oblong section (pl. L B). It was found amidst the lateritic soil forming the filling of the floor.

The apsidal structure is the first of its kind in Orissa. There can be no doubt that it was a religious edifice of Jaina affiliation, as the Udayagiri and the adjacent Khandagiri hills contain monuments of no other faith. Further, as the Udayagiri has till now been known to contain only cave-dwellings of the Jainas, the present structure may be regarded as having provided the resident monks with a place of worship. As the circular structure survived in only one course, it was difficult to determine whether it was a *stupa* or just a round plaform on which the object of worship was installed.

The date of the apsidal structure is uncertain and can only be guessed from circumstantial evidences. As has been stated above, the structure was situated on the roof of the cave (more properly rock-shelter) bearing on its brow the inscription of Kharavela. The presence of this record of the ruler at such an unimportant place would be fully explained by the assumption that Kharavela himself erected the edifice. It may be recalled that the inscription states that the ruler brought back from Magadha the *jina* of Kalinga that had been taken away by the Nandas and built some structure of stone on the Kumari hill (i.e. Udayagiri) where he also excavated caves for Jaina monks.

PANJAB

42. EXPLORATION IN DISTRICT HOSHIARPUR.—In the course of his survey of the Siwaliks for the study of terrace-system in the Sutlej valley, Dr. A. P. Khatri of the Council of Scientific and Industrial Research discovered new fossil-localities in Una Tahsil. More than a hundred fossils, mostly dentitions, were found here and in District Bilaspur (also p. 26).



EXPLORATION IN SOUTH-WEST RAJASTHAN 1958-59
20 0 20 40 60 80 KILOMETRES
10 0 10 20 30 40 50 60 MILES
KISHANGARH
AJMER
SINGAWAL
R. KHARI
R. BANAS
BEAWAR
BIJAINAGAR
MANDAL
HAMIRGARH
R. KOTHARI
BHILWARA
R. BANAS
CHITOR
R. GAMBHIRI
R. BERACH
NIMBAHERA
JODHPUR
R. LUNI
R. LILRI
R. SUKRI
MARWAR
SOJAT ROAD
R. SUKRI
RANAWAS
R. BANDI
RANI
ERINPURA ROAD
R. SUKRI
R. MITRI
FALNA
CHAMRERI
R. JAWAI
DELHI
CALCUTTA
MADRAS
AREA OF MAP
SITES WITH TOOLS OF SERIES I
SITES WITH TOOLS OF SERIES II
SITES WITH TOOLS OF SERIES I & II

FIG. 18.

RAJASTHAN

43. EXPLORATION IN DISTRICTS AJMER, BARMER, BHILWARA, CHITOR-GARH, JODHPUR, MARWAR AND TONK.—Shri V. N. Misra of the Deccan College Post-graduate and Research Institute, Poona, explored the valleys of the Luni and Banas and their tributaries in southern Rajasthan (fig 18). As a result, twenty-one new palaeolithic sites of Series I and II were brought to light, the tools of the latter Series, comprising scrapers, being confined, however, to the Luni valley, which was surveyed for a total stretch of about 100 miles, between Samdari and the causeway of the Pali-Jodhpur Road on the one hand and between Bilara and Govindgarh on the other. A few handaxes of the Late Acheulean facies were found mixed with tools of Series II. Besides, factory-sites of the latter were found at Pichak near Bilara on the Luni and at Dhaneri near Sojat on the Lilri. The material of most of these tools was flint and jasper. At Dhaneri and near it, in the river Sukri, and at Sojat were found some flakes, blades and cores, which seemed to belong to a microlithic industry. Other tributaries of the Luni which yielded tools were the Bandi, Guhiya and Reria. The Jawai, Mitri and three Sukris (Sukri being a common river-name in Rajasthan) were explored respectively near Erinpura Road, Falna, Rani, Ranawas and Sojat Road—all on the Western Railway, but none of these places yielded any tool.

DISTRIBUTION OF TOOLS OF SERIES I AND II

River-valleys	*Sites with tools of Series I*	*Sites with tools of Series II*
Luni	2. Luni (Jodhpur)	1. Samdari (Bharmer) 2. Luni (Jodhpur) 3. Shikarpura (Jodhpur) 4. Bhawi (Jodhpur) 5. Pickak (Jodhpur)
Guhiya	6. Singari (Marwar)	6. Singari (Marwar) 7. Bhandei (Marwar)
Reria		8. Danawasni (Marwar)
Bandi	9. Pali (Marwar)	9. Pali (Marwar)
Sukri		10. Sojet (Marwar)
Lilri		11. Dhaneri (Marwar)
Sagarmati	12. Govindgarh (Ajmer)	12. Govindgarh (Ajmer)
Banas	13. Hamirgarh (Bhilwara) 14. Surubganj (Bhilwara) 15. Mandpia (Bhilwara) 16. Bigod (Bhilwara) 17. Jahazpur (Bhilwara) 18. Deoli (Tonk) 19. Banthali (Tonk) 20. Mahuwa (Tonk) 21. Tonk	
Gambhiri	22. Chitor (Chitorgarh)	

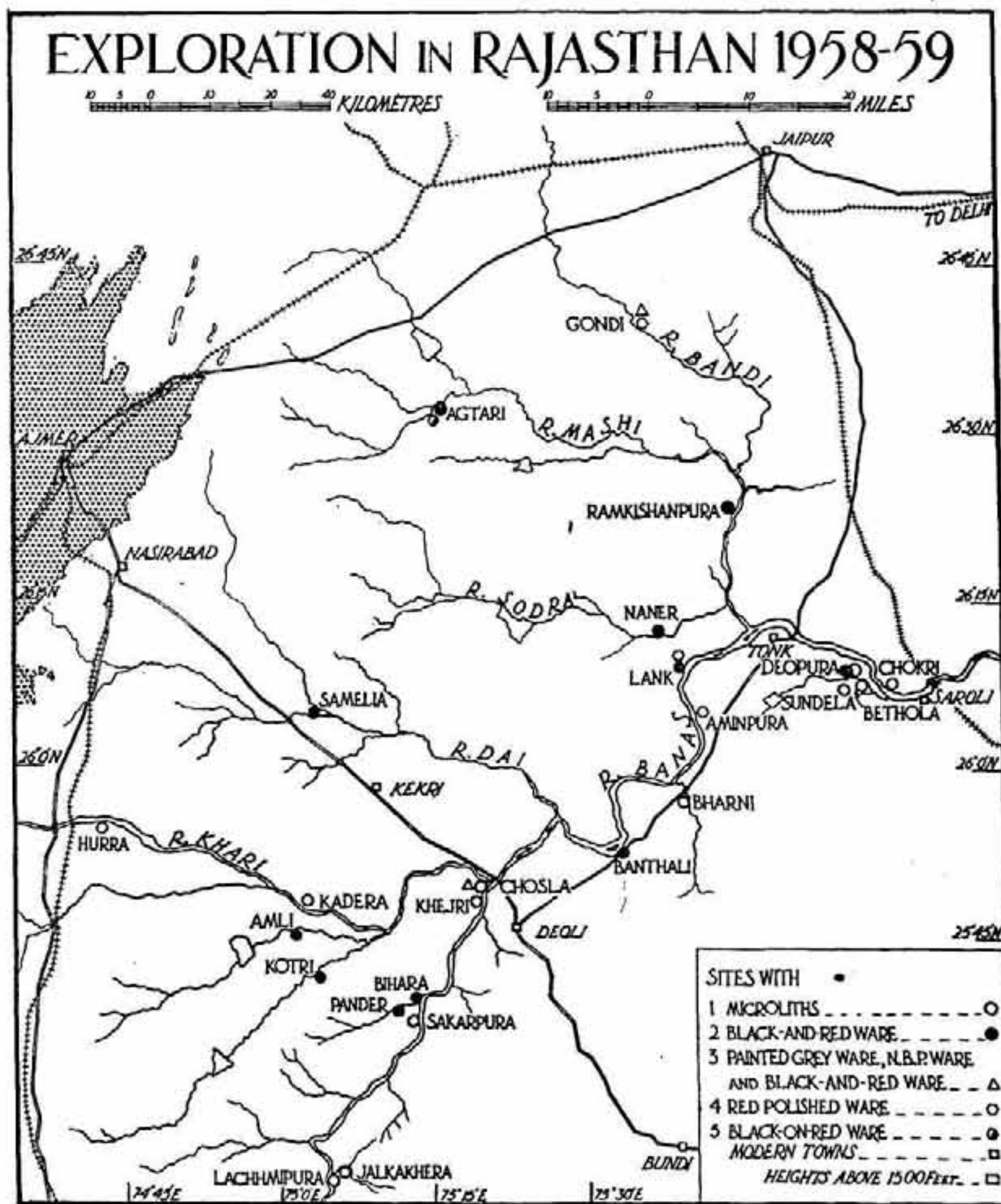

EXPLORATION IN RAJASTHAN 1958-59
KILOMETRES
MILES
JAIPUR
TO DELHI
26°45'N
GONDI
R. BANDI
AGTARI
R. MASHI
26°30'N
AJMER
RAMKISHANPURA
NASIRABAD
R. SODRA
NANER
26°15'N
TONK
LANK
DEOPURA
CHOKRI
SUNDELA
BETHOLA
SAROLI
SAMELIA
AMINPURA
R. DAI
R. BANAS
26°0'N
KEKRI
BHARNI
HURRA
R. KHARI
BANTHALI
CHOSLA
KADERA
KHEJRI
AMLI
DEOLI
25°45'N
KOTRI
BIHARA
PANDER
SAKARPURA
SITES WITH
1 MICROLITHS
2 BLACK-AND-RED WARE
3 PAINTED GREY WARE, N.B.P. WARE AND BLACK-AND-RED WARE
4 RED POLISHED WARE
5 BLACK-ON-RED WARE
MODERN TOWNS
HEIGHTS ABOVE 1500 FEET
BUNDI
LACHHMIPURA
JALKAKHERA
74°45'E
75°0'E
75°15'E
75°30'E

FIG. 19

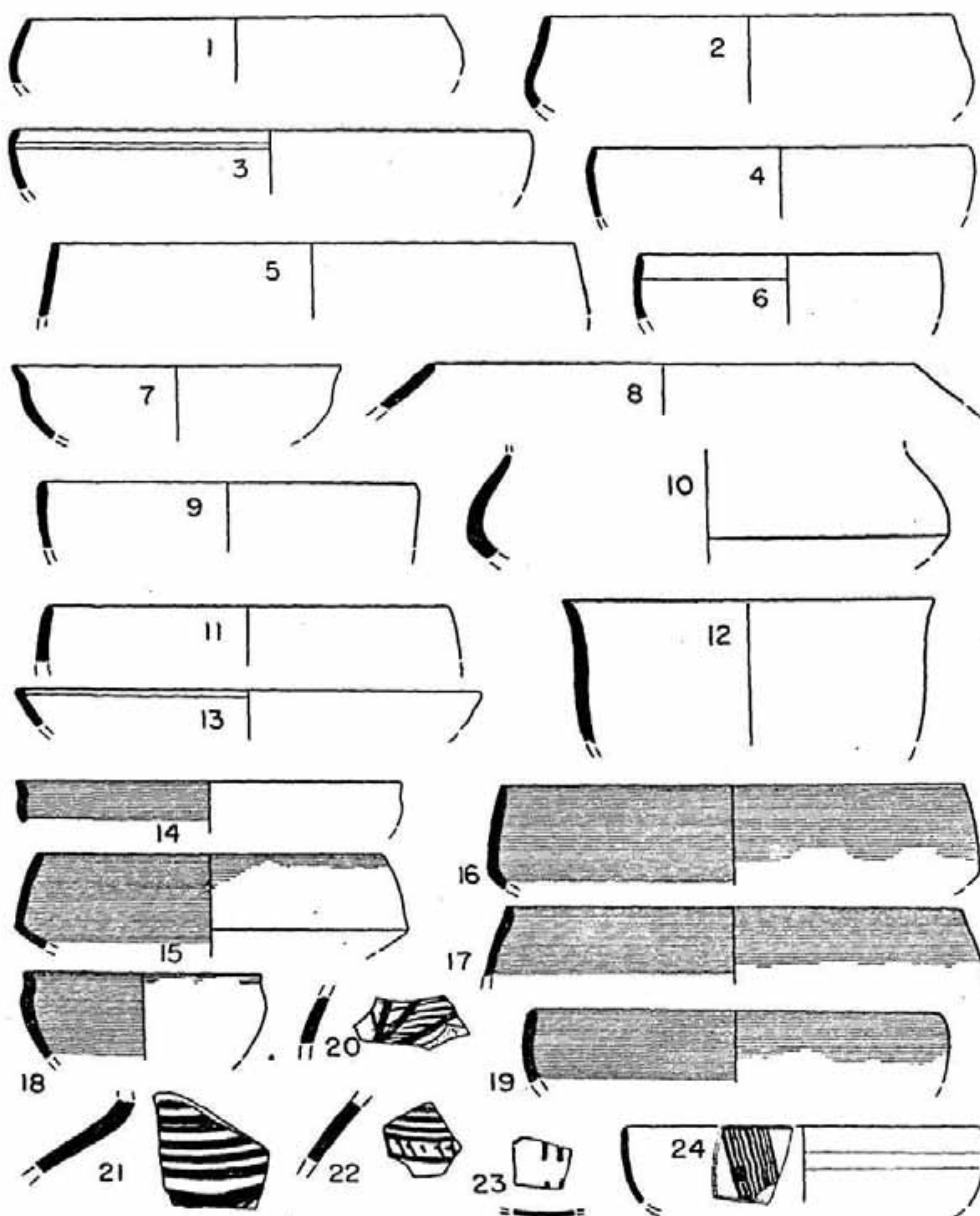


FIG. 20

The river Banas was surveyed for a stretch of about 120 miles between Hamir-garh in Bhilwara District and Tonk. Nine sites found on the river yielded tools of only Series I comprising huge pebble cores, scrapers, choppers, handaxes, cleavers and Clactonian flakes. A well-preserved section was found near Hamirgarh opposite Surub-ganj: it consisted of a 6-ft. thick deposit of cemented gravel capped by a 15-ft. thick deposit of silt. Many tools were chiselled out of the cemented gravel. The Khari was explored near Bijainagar and Kothari near Bhilwara and Mandal, but no tool was found. The site of Chitor on the Gambhiri was re-examined, and many tools were found in the gravel in a gully below Bhilai-ki-Jhopadian near the fort.

The table on p. 42 gives the names of the sites of the two categories. The number preceding each site-name refers to the corresponding number on the map (fig. 18) showing the location of the sites and the name following it is that of the District.

44. EXPLORATION IN DISTRICTS AJMER, BHILWARA, JAIPUR AND TONK.—In continuation of the last two years' work *(1956-57*, p. 8; *1957-58*, p. 43), the Exploration Branch of the Department further explored the south-eastern parts of Rajasthan (fig. 19), to the north of Bilio, in the valleys of the Banas and its affluents, viz., the Khari, Dai, Mashi and Bandi, to Saroli on the right bank of the Banas. The exploration brought to light sites of different categories, viz., those with (i) microliths (indicated in the following list by M), (ii) non-megalithic black-and-red ware (BR), (iii) microliths and black-and-red ware, (iv) black-and-red ware and paintedblack-on-red ware (PBR), (v) the Painted Grey Ware (PG), Northern Black Polished Ware (NBP), black-and-red ware and microliths, (vi) the Painted Grey Ware, Northern Black Polished Ware, black-and-red ware and Red Polished Ware (RP) and (vii) the Red Polished Ware. Following is the list of explored sites, with the material available from each. *District Ajmer:* Chosla (PG, BR, NBP and M), Khejri and Kadera (M), Samelia (BR). *District Bhilwara:* Amli, Bihara, Ko.tri and Pander (BR), Hurra (RP) and Jalkakhera, Lachhmipura and Sekarpura (M). *District Jaipur:* Agtari (BR and PBR) and Gondi (PG, NBP, BR and RP). *District Tonk:* Aminpura (RP), Banthali, Naner and Ram-kishanpur (BR), Baithola, Bharni, Chokri and Sundela (M), Deopura (M and BR) and Lank (BR and RP).

Microliths (pl. LI), of chert, jasper, agate, quartz and chalcedony, included fluted cores with the crested ridge, parallel-sided blades with triangular or trapezoidal section, backed and notched blades and points, besides a solitary lunate from Bharni. The collection of pottery was varied (fig. 20). The types represented in the black-and-red ware were similar to those in the Painted Crey Ware, except for a few pieces from Agtari, which showed affinities to those found at Ahar. Among the main types in this ware were the bowl and dish usually with convex sides and an incurved rim or straight sides and a vertical rim, some specimens with a slight carination at the waist. Gondi, approached *via* Renwal, contained a mound with 25-ft. thick occupational deposits. Another important site was Agtari, where the black-and-red ware of the Ahar variety was found in association with the black-on-red painted pottery. The painted designs, executed in deep black pigment over a deep red surface, included horizontal bands and herring-bone and leaf patterns. A bowl of black-and-red ware from this site was painted internally in dull white wavy lines.

An assessment of the material collected during the present and two previous seasons indicated that the main zone of the Ahar culture was limited in the north to District Bhilwara, the northernmost outpost being Kadukota. This tentative conclusion is based on two grounds. First, all the sites north of Kadukota yielded only a few fragments of the black-and-red ware of the Ahar variety in contrast to the huge quan-

tities of that ware from the southern- sites like Purani Marmi, Bhagwanpura, etc. Secondly, the painted designs, so profuse on the black-and-red ware of the southern sites, are distinctly wanting further north of Kadukota, there being only one painted black-and-red ware specimen so far, viz., the one from Agtari.

The link which was provided last year between the archaeology of Rajasthan and that of the Ganga valley, with the discovery of a dish of grey ware at Bhagwanpura, has now been strengthened with the discovery of the Painted Grey Ware at Chosla and Gondi. Incidentally, this discovery adds another 150 miles southwards to the extent of the Painted Grey Ware culture, the former limit having been at Bairat in District Jaipur.

45. EXCAVATION IN CHITOR FORT, DISTRICT CHITORGARH.—In the course of general clearance in the Mahasati enclosure four shrines and some ashes and charred bones were found. As Rajput ladies are believed to have committed *sati* in this enclosure, three trenches were laid here by Shri S. R. Rao of the Western Circle of the Department to ascertain the truth of the tradition. Of the five structural Phases noticed, Phase I was marked by a small shrine flanked by two other shrines, the architectural features of which would roughly indicate the eleventh century as their date. In Phase II another shrine seems to have been constructed. To the same Phase belonged a stone pavement and two foundation-walls. Phases III and IV were important for the point under investigation. Three shrines (pl. LII A) and an oblong brick enclosure (pl. LII B) externally reinforced by rubble and internally plastered were laid bare. Within the enclosure, a 6-in. thick layer of ashes was noticed; it was also seen that its mud floor was burnt. Close by were three pits full of ashes. Another interesting structure was a paved platform over which stood a *sati*-stone (pl. LII C). Two other loose *sati*-stones were also found.

UTTAR PRADESH

46. EXCAVATION AT KAUSAMBI, DISTRICT ALLAHABAD.—The University of Allahabad continued its excavation at Kausambi under Shri G- R. Sharma. Last year's work (*1957-58,* p. 47) had brought to light five main Periods of the defences, besides a pre-defence deposit. This year the excavation was continued in the same area, the object being to make a more intensive study of the defences as also to reach the natural soil to ascertain the total number of the pre-defence Sub-periods. A trench was also laid in the area of the moat (*1954-55,* p. 18) between the outer slopes of the defences and the small mound on the eastern (outer) side of the moat.

The pre-defence deposits were divisible into two Sub-periods, the earlier being represented by a floor resting on the natural soil and the later by a wall running east-west, besides traces of structures subsequently destroyed.

The earliest Period, I, of the defences was found to comprise six Sub-periods, the uppermost of which was marked by the first occurrence of the Northern Black Polished Ware. From the very beginning, the defences consisted of a mud rampart, reinforced on the exterior by a burnt-brick revetment. The excavation also brought to light the vestiges of a passage ascribable to the earliest Sub-period (pl. LIII). In the second Sub-period, the revetment started bulging at the base and, in order to prevent a collapse, weep-holes, situated 6 ft. apart, were cut into it. The weep-holes discharged themselves into small circular unlined pits cut into the natural soil. The revetment was also repaired towards its northern end. During the third Sub-period necessity was felt for the first time to raise the level of the passage. In the fourth Sub-period the passage and revetment were again repaired and ancillary structures put up. The passage-floor

was exposed to a length and width of 28 ft. and 15 ft. respectively. The fifth Sub-period was marked by an addition to the revetment and the raising of the rampart itself. The former was clearly distinguishable from the original edge of the revetment on account of a sharp break in construction (pl. LIV A). It was in this Sub-period for the first time that the use of mud-bricks was made in the core of the rampart. The sixth Sub-period was notable for the first occurrence of the N. B. P. Ware. An associated drain, available to a length of 11 ft., was also noteworthy (pl. LIV B).

Considering the fact that as many as four Sub-periods intervened between the beginning of the defences and the first occurrence of the N. B. P. Ware, it may not be unreasonable to assume that the defences came into being some time in the first quarter of the first millennium B.C.

Of Period II of the defences, the excavation exposed considerable portions of the rampart and its revetment. It was further confirmed that the Period had four Sub-periods during all of which the N. B. P. Ware was found in abundance. A noteworthy discovery was that of a flight of steps belonging to the last Sub-period (pl. LIV A).

The excavation exposed a subsidiary rampart, divisible into two Periods, which served as a screen in front of the passage. The first subsidiary rampart, built of hard rammed mud, was situated at a distance of 24 ft. from the base of the revetment of the main rampart of Period I. Measuring 30 ft. in width at the base and 18 ft. up to the highest available point, it was exposed to a length of about 80 ft. It was noticed to have continued in use till the beginning of the N. B. P. Ware.

The second subsidiary rampart, resting partly on the outer part of the first subsidiary rampart and partly on the accumulations against it, had a basal width of 38 ft. and an available height of 15 ft. It was built of mud, yellowish in appearance, which was full of sherds of the N. B. P. Ware. It also yielded silver punch-marked and copper uninscribed cast coins. The evidence thus shows that the second subsidiary rampart fell well within Period II of the main defences.

The defences were encircled by a wide moat, the vestiges of which on the western, northern and eastern sides had already been noted (*1954-55*, p. 18). On the outer side of the moat there are some small mounds which seem to represent the remains of watch-towers. One such watch-tower is situated opposite the passage through the defences referred to above. This year a trench was laid in the area between this watch-tower and the outer slope of the main rampart. The excavation exposed a considerable extent of the moat (pl. LV A) and also brought to light a road (pl. LV B) between the moat and the foot of the rampart.

Besides the N. B. P. Ware (pl. LVI A), which included painted and incised specimens, and the grey ware with designs painted in black pigment (pl. LVI B)—the latter representing a decadent stage of the Painted Grey Ware of the upper Ganga-Yamuna basin—already referred to above, the pottery included a black-and-red ware and plain grey and red wares, in the last of which certain shapes call for special attention (fig. 21). The discovery of iron in levels preceding the N. B. P. Ware was noteworthy.

47. EXCAVATION AT SRAVASTI (MAHET), DISTRICT BAHRAICH.—with a view to ascertaining the nature of the fortifications and obtaining a knowledge of the lower levels of the site, a small-scale excavation was carried out at Sravasti by Shri K. K. Sinha on behalf of the Northern Circle of the Department.

A trench, 126 ft. x 15 ft., was laid across the northern fortification-wall where surface-collections had already indicated the presence of the Northern Black Polished Ware and other early pottery. The excavation revealed that the site had been occupied for a considerably long time, prior to the coming up of the defences (pl. LVII).

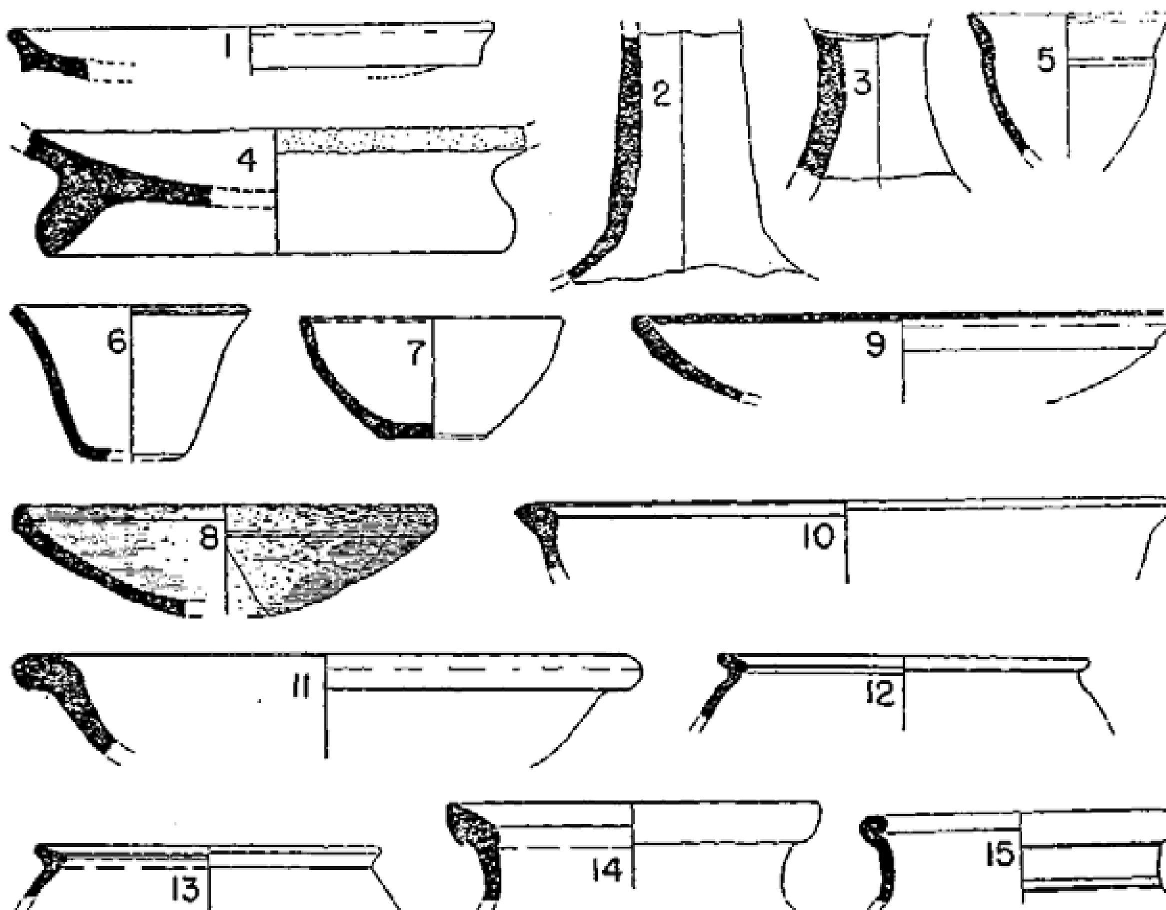


FIG. 21. *Kausambi: some pottery-types from early levels.* ¼

This pre-defence habitation, referred to hereafter as Period I, was represented by a 5- to 6-ft. thick deposit immediately overlying the sterile yellow loam. The most important discovery pertaining to this Period was that of a few sherds of the Painted Grey Ware, including a well-preserved specimen of a bowl (fig. 22; pl. LIX C), in the lowermost levels. In these very levels also occurred certain sherds which technologically represented a stage preceding the full-blooded N. B. P. Ware, abundant examples of the latter (fig. 22), however, being available somewhat higher up. The assemblage also included a few pieces of a ware having painted designs in buff or cream over a polished black surface (fig. 22; pl. LIX A). The motifs, consisting mainly of grouped vertical strokes, were reminiscent of some of those found on the Painted Grey Ware. The other ceramic industries of the Period included the black-slipped, black-and-red, thin grey, and plain red wares (fig. 22). A few pieces of the last-named ware, mainly belonging to storage-jars, bore incised designs, such as chevrons, criss-cross, ripple-marks, zig-zags, etc. (fig. 22), which, it may be observed in passing, were similar to the incised designs found on jar-fragments from the chalcolithic levels of Navdatoli. Mention may also be made of a few sherds of a polished black-and-grey ware bearing graffiti.

The other finds of the Period included: a borer, a nail-parer and antimony-rods of copper; arrow-heads or styli (?) of bone; bangles, mainly of green glass; and

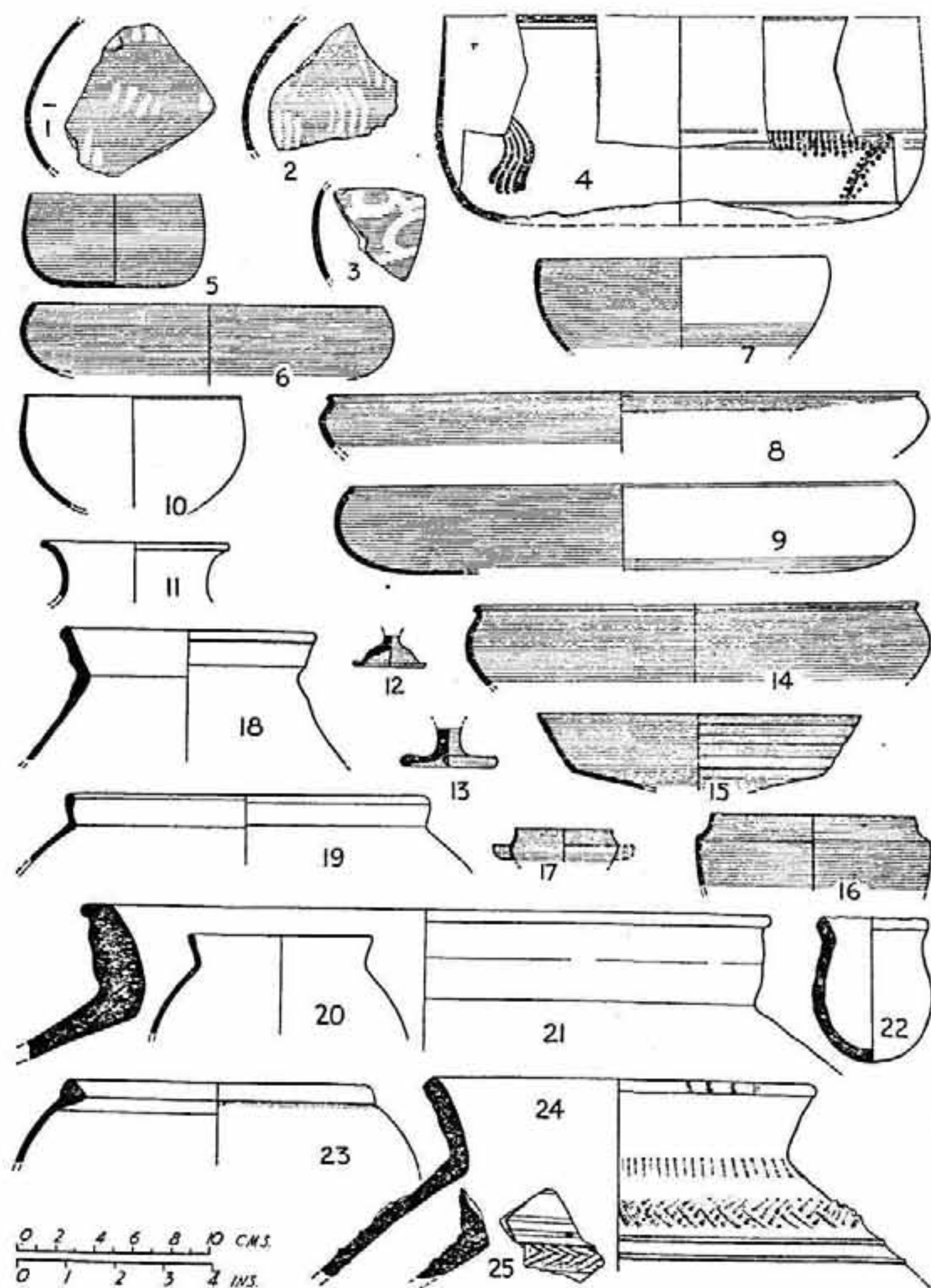


FIG. 22. *Sravasti: pottery-types. 1-3, painted black ware; 4. Painted Grey Ware; 5 and 6, black polished ware; 7-9, black-and-red ware; 10 and 11, grey ware; 11-17, Northern Black Polished Ware; 18-23, plain red ware; 24 and 25, incised ware*

beads, variously of glass, agate, carnelian and terracotta. In the last-named item, particular attention may be drawn to two eye-beads of glass (pl. LX ,6), a leach-shaped bead of banded agate (pl. LX, 7) and an axe-amulet of carnelian (pl. LX, *4).*

No brick structure was met with, nor any coin recovered, in this Period.

The cultural assemblage described above, particularly the pottery, suggests that Period I might have begun not very long after the end of the Painted Grey Ware occupation at Hastinapura, i.e. some time in the second quarter of the first millennium B.C. As to its end, the evidence of the following Period suggests a date some time towards the end of fourth century B.C.

Period II was marked by the coming up of a mud-rampart, which, with a circuit of 3 miles, was laid roughly in the form of a crescent with the northern side overlooking the river Rapti. Of the rampart and other structures going with it, four Sub-periods were noted. In the earliest Sub-period, the rampart had a basal width of 95 ft. The highest available point wherefrom it sloped either side—the slope on the exterior being more steep (pl. LVII B)—was noted to be 12 ft. above the contemporary ground-level. Between this and the subsequent Sub-period were encountered a pottery and ash-dump on the outside and seemingly occupational debris with three terracotta soak-age ring-wells (pl. LVII A) on the inside, suggesting that for some time this part of the rampart had fallen into disuse. In the second Sub-period was built a brick structure (pl. LVII B), serving possibly as a parapet over the rampart. In the next Sub-period the height of the rampart was raised by mud-filling, while in the last Sub-period was built a brick structure above that filling.

The pottery of Period II, showing a marked change from that of the preceding Period, consisted of red and thick grey wares, with shapes commonly found in the Sunga levels of north Indian sites. More than a dozen copper coins, mostly from the upper two Sub-periods, were found, a well-preserved specimen belonging to the Ayodhya Series, dated to the middle of the second century B.C. Amongst other finds of the Period mention may be made of: terracotta *naga* figures (pl. LXI A, *5*) and moulded plaques of *mithunas* (pl. LXI A, 2); beads of stratified glass (white spiral over black glass, pl. LX, *21*) and crystal (pl. LX, 9 and 70); and dagger-pendants of carnelian and shell (pl. LX, 72 and *13)*.

At a distance of about 1000 feet south-west from the cutting across the defences, a trench, 18 ft. square, was laid in the habitation-area, mainly to cross-check the sequence described above. Herein Period I was not available, but Period II was represented by three structural Sub-periods (pl. LVIII). It was also confirmed that the N. B. P. Ware did not continue in the latter Period. A noteworthy find in the upper levels of this trench was a terracotta sealing (pl. LIX B) with the legend *Baladata-(sa ?)* in the Brahmi script of the second-first century B.C.

The occurrence of the Ayodhya coins and the seal referred to above in the upper levels of Period II suggests for it a date from about the middle of the third to the middle of the first century B.C.

In the trench in the habitation-area were also encountered deposits yielding typical early medieval pottery, thus signifying the re-occupation of Sravasti for the third time (Period III). Structures belonging to three Sub-periods (pl. LVIII) were exposed. Amongst other finds of the Period mention may be made of hollow cylindrical terracotta figures (pl. LXI B).

48. EXCAVATION AT ALAMGIRPUR, DISTRICT MEERUT.—In May 1958, the Regional Camp Committee of the Bharat Sewak Samaj, while camping at Alamgirpur, 17 miles west of Meerut and 28 miles north-east of Delhi, less than 2 miles

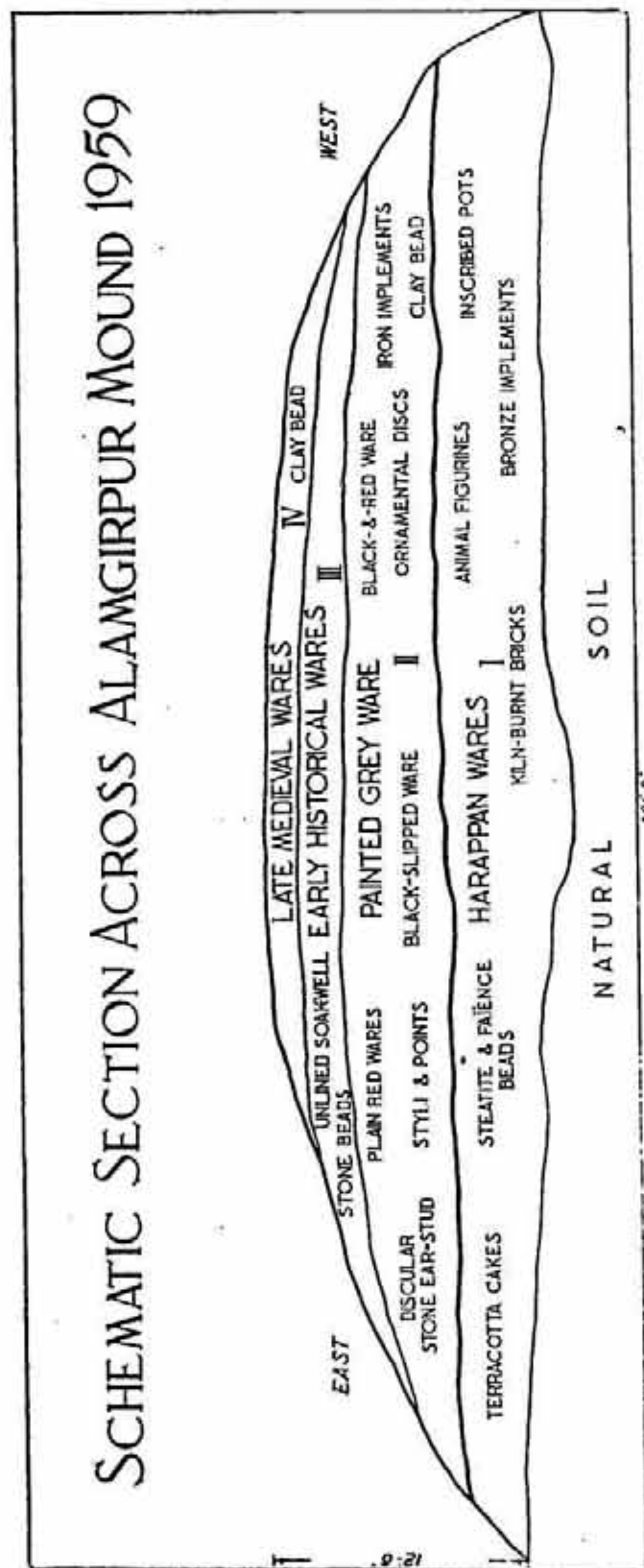

SCHEMATIC SECTION ACROSS ALAMGIRPUR MOUND 1959
EAST
WEST
LATE MEDIEVAL WARES
IV
CLAY BEAD
STONE BEADS
UNLINED SOAKWELL
EARLY HISTORICAL WARES
III
PLAIN RED WARES
PAINTED GREY WARE
II
BLACK-&-RED WARE
IRON IMPLEMENTS
DISCULAR STONE EAR-STUD
STYLI & POINTS
BLACK-SLIPPED WARE
ORNAMENTAL DISCS
CLAY BEAD
TERRACOTTA CAKES
STEATITE & FAÏENCE BEADS
HARAPPAN WARES
I
ANIMAL FIGURINES
INSCRIBED POTS
KILN-BURNT BRICKS
BRONZE IMPLEMENTS
NATURAL SOIL
12·0'
201·0'

FIG. 23

off the left bank of the Hindon, a tributary of the Yamuna, excavated a long trench in the neighbouring small mound, locally known as Parasram-ka-khera, and unearthed some pottery, beads and other objects. On an examination of the material, Dr. Y. D. Sharma of the North-western Circle of the Department noticed, besides the Painted Grey Ware, fragments of terracotta cakes and faience bangles, pointing to the probable Harappan affiliation of the site. As this opened up the possibility of the location of a station of the Harappa culture within the Ganga-Yamuna doab, Dr. Sharma subsequently undertook a fresh excavation of the site, besides scraping the sides of the already-excavated trench.

On excavation, the site revealed four cultural Periods (fig. 23; pl. LXII) with a break in between all of them, the earliest, represented by a thickness of 6 ft., belonging to the Harappa culture. The pottery of Period I included the dish-on-stand, goblet with pointed base, straight-sided dish, cylindrical vase and beaker, goblet with a concave neck and elongated at base, shallow dish with incurved rim, shallow basin with tapering sides and a variety of rim-forms and perforated jar (fig. 24). The painted motifs, executed in black pigment over a red slip, comprised simple bands, triangles, squares, intersecting circles, plants and the peacock. The hatching was either in parallel lines or criss-crossed, there being also occasional blocked designs (pl. LXIV).

In a large pit of the Period was found a crushed pile of thick platters and troughs (pl. LXV B and C). The platters had either a ring-base or three low legs and were presumably used for preparing bread in the Indian way. Some of the troughs had an open base, a few also bearing short incised inscriptions consisting of two symbols (pl. LXV A), probably the potter's name or mark.

Fascinating evidence regarding cloth was provided by impressions on a trough. The yarn seems to have been fairly fine, though not of uniform section, the technique being that of 'plain weave'.

Animal figurines, in the form of the head of a bear (?), being part of a vessel, and the fragmentary body of a humped bull were recovered. There was also the representation of a snake. Other terracotta objects comprised cakes, carts, cubical dice, beads and bangles. A small fragmentary terracotta ornament, possibly a bead, was coated with gold. Amongst other finds mention may be made of miniature bowls and bangles of faience, beads of steatite and semi-precious stones and pins and a broken blade of bronze or copper.

No structure of the Period was found, probably on account of the limited extent of the operation. Kiln-burnt bricks were, however, in evidence. They fell into two groups, the smaller size measuring 11¼ to 11¾ in. length, 5¼ to 6¼ in. in width and 2½ to 2¾ in. in thickness and the larger averaging 14 in. x 8 x in. x 4 in.; the latter was, however, found used only in a furnace. Some bricks bore three finger-marks, either along the length or diagonally at the corner. Fragments of oblong tiles were found in the large pit referred to above.

In the previously-excavated trench two phases of construction were noted. Overlying the natural soil was observed a consolidated and edged mud-surface, reddish in colour, presumably the result of some firing-operation. Close to it, inside a pit, lay a number of terracotta cakes and some potsherds. In the second phase, a mud wall covered the earlier edging and the pit, and another portion of the surface was consolidated and marked with mud-edging. To its east was found a single course of bricks enclosing a small *kankar*-lined depression, which might have been a furnace.

The break between Periods I and II was demonstrated not merely by their respective cultural assemblages but also by a difference in the texture and composition of their layers. Thus, while the deposits of Period I were compact and brownish, those of

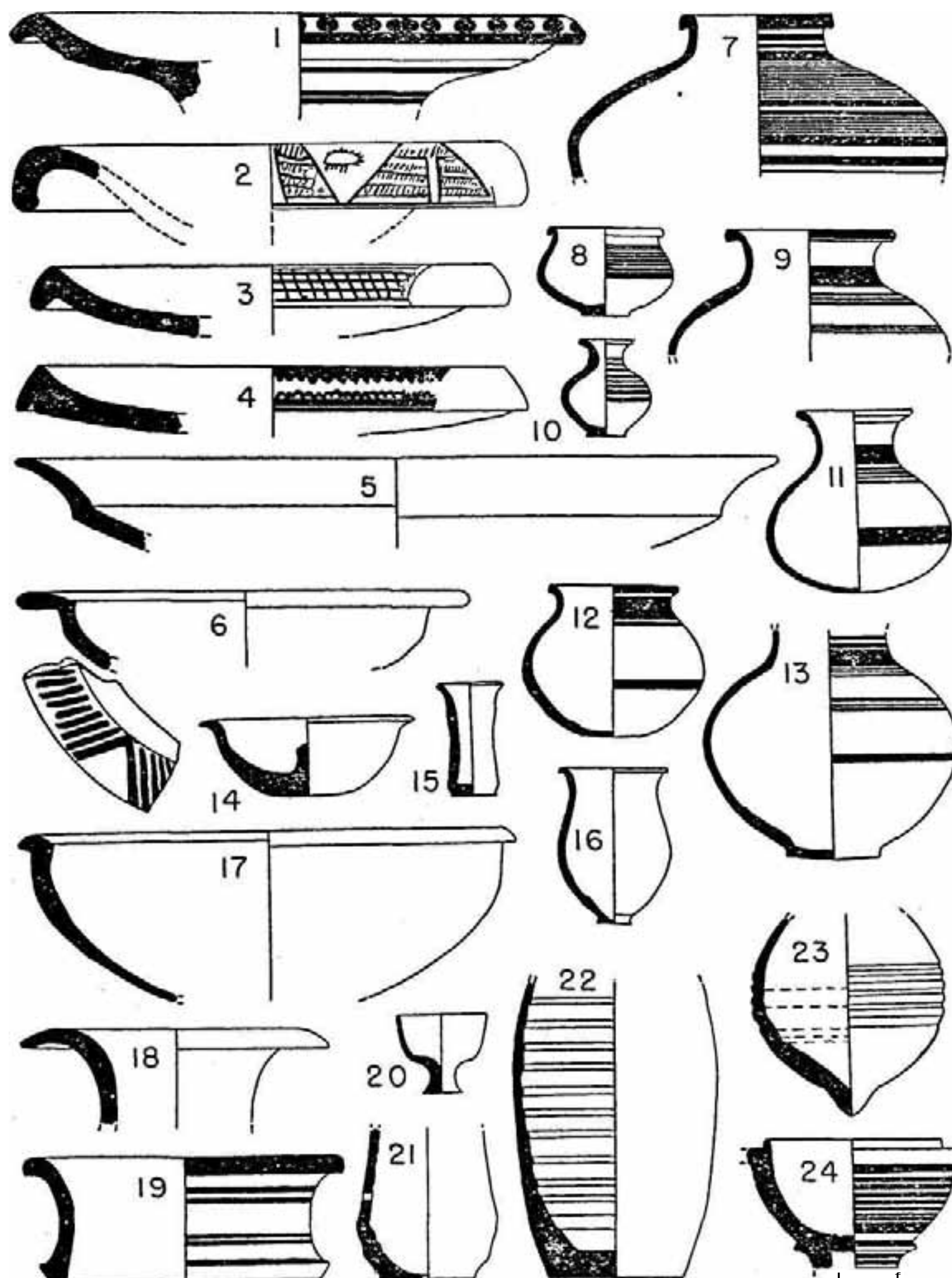


FIG. 24. *Alamgirpur: pottery-types, Period!.*

Period II were loose and grey with frequent bands of burnt earth and ash (pl. LXIII A). Further, the top-surface of Period I was hard and whitish, signifying a long exposure. Over a large portion of the mound this surface was found strewn with small weather-worn potsherds. On a part of the eastern slope of the mound this surface was further noticed to have been consolidated during Period II and used for thrashing or pounding operations, as suggested by the depressions made possibly for the mortar (pl. LXIII B).

Period II, with an average thickness of 4 1/2 ft., was characterized by the occurrence of the Painted Grey Ware and the black-slipped, black-and-red and plain red wares. In the first three wares, the main types were the bowl, usually with straight sides and a flattish base, and the dish with sides incurved and bluntly-carinated to meet a mildly-convex base. A black-and-red ware bowl with a convex base had a grooved carination at the shoulder. The dish with incurved sides also occurred in the red ware, but a few specimens seemed to have been fired deliberately to that colour, others having become partly red and partly grey as a result of differential firing. There was the smoothly-finished basin in the red and grey wares, an example in the latter, with a thick black slip, being noted for the openwork design cut through its section. The cooking- and storage-vessels had a rough surface and dusty-brown to grey colour, with mica as one of the *degraissants.* The types included the jar with a splayed-out rim, internally-carinated neck and globular body, the jar with flared rim and concave neck, the jar a with thickened rim and vertical neck and the basin with grooved and collared rim.

Two wheeled terracotta toys, one representing a bull and the other a ram, brought to light a new tradition: the animal figures were beautifully finsihed, with incised strokes on the body and provided with a hole through the nostrils, evidently for the insertion of a string. Of interest was a semi-circular grey-ware object, with its convex sides meeting at the apex of a lenticular section and the interior hollow space divided into two portions, as examples of it had so far been encountered at other sites only in the Northern Black Polished Ware and later levels. Copper continued in use, but noteworthy was the occurrence of iron objects throughout the Period, the assemblage including a spear-head, a barbed arrowhead and nails or' pins. Among other finds of the Period were : dice, styli, pins and arrow-heads of bone; small reel-shaped discs of black jasper, vitreous paste and bone; and beads of glass.

Only a fragmentary mud-wall was noticed in the top levels of the Period. However, large lumps of clay, sometimes burnt, with reed-impressions, suggested that the houses had also been built of reeds plastered over with a thick layer of clay.

The deposits of Period III, with an average thickness of less than a foot, were confined to certain areas of the mound. The pottery of the Period included the pear-shaped jar, jar with an externally-flattened rim and vertical neck, cooking-basin with a nail-headed rim, bowl with an inturned rim, vase with an elongated pear-shaped body and flat base, and lid (?) with lamps along the rim. Little evidence was obtained regarding the other industries of the Period.

No structure was met with, but kiln-burnt bricks occurred in two sizes, viz. 12½ in. x 12½ in. x 3¾ in. 18 in. x 12½ in. x 3¾ in.; all bore three-finger frog-marks. Mud bricks of uncertain dimensions were also noticed. Mention may also be made of an unlined soakage-well of the Period.

The main ceramic types of Period IV were the large bowl with tapering sides and flat base, jar with partial decoration on the rim, spouted jar, jar with a cordon below the splayed-out rim, carinated *handi*, miniature lamp and lid with tapering sides. There were also fragments of glazed ware. A wall and a floor built with *lakhauri* bricks were noticed.

It is amply evident from the above that the four Periods of Alamgirpur respectively belonged to the Harappan, Painted Grey Ware, early historical and very late medieval periods. Any greater chronological precision would be unwarranted. It is likely that the Harappan culture at the site, though containing unmistakable traits of that culture at its maturity, might- still have belonged to its late phase, as is suggested by certain elements not present at the type-sites. Similarly, in the next Period, the percentage of the Painted Grey Ware was rather low in occurrence, as if the Ware had been on the decrease. This, together with the occurrence in the Period of certain ceramic types associated at Hastinapura and Rupar with the Northern Black Polished Ware levels would point to Period II of the site as representing a late phase of the Painted Grey Ware culture—a supposition strengthened by the occurrence of iron throughout the levels of the Period. The ceramics of Period III, while containing features also characteristic of the corresponding Periods of Hastinapura and Rupar, contained a few somewhat later features of those two sites. Lastly, from all evidence, including the name of the site (Alamgir being the well-known surname of Aurangzeb, the last great Mughul emperor), the last Period of the site may be regarded as belonging to the late seventeenth or early eighteenth century.

WEST BENGAL

49. EXCAVATION AT CHANDRAKETUGARH, DISTRICT 24-PARGANAS— The University of Calcutta continued its excavation *(1957-58,* p. '51) at Khana-Mihirer-dhipi, Chandraketugarh, bringing to light three walls and a part of the fourth of the massive structure encountered last year and fairly confirming the supposition that the structure represented a temple of the Gupta period. Its plan gave the idea of a square, each side 63 ft. long, with an external projection in the middle of each of the three, sides eastern, southern (pi. LXVI A) and western, and a vestibule, 45 ft. square, attached to the middle of the northern side (pi. LXVI B). Its foundation was laid more than 10 ft. below the contemporary occupation-level, indicated by a brick pave-

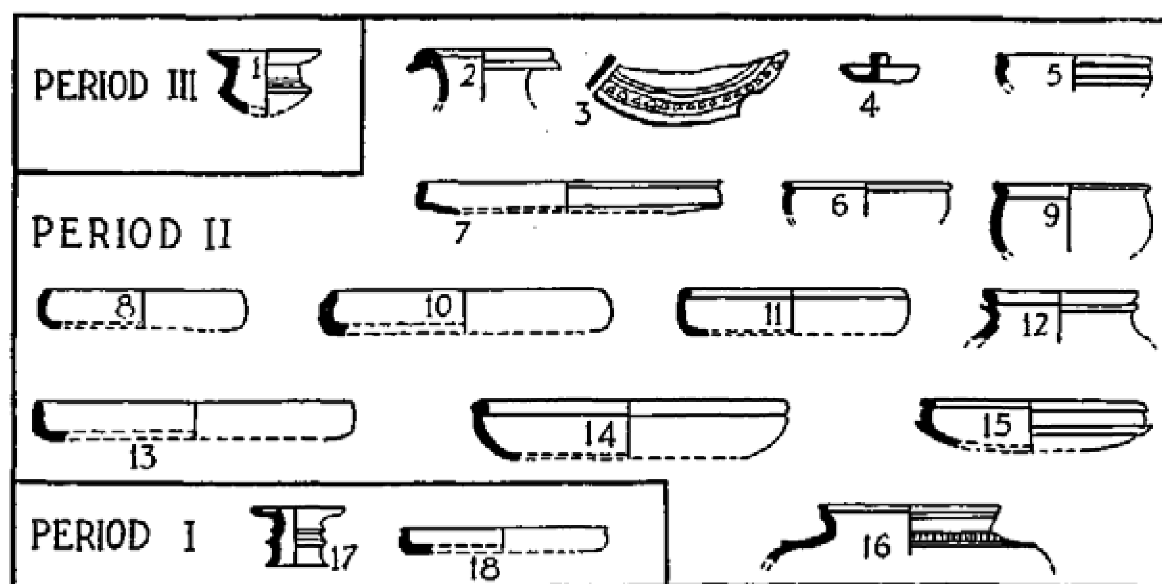


FIG. 25. *Chandraketugarh: pottery-types*

ment. No evidence was avalible about the denominational affiliation of the temple.

The occupation at the site fell into three broad Periods. Period I, antedating the temple, showed signs of wooden or bamboo structures with tiled roofs, probably having pottery finials. The pottery-types (fig. 25) included the shallow grey dish with an externally-thickened rim. A few terracottas (pl. LXVII A), some of them with Kushan characteristics and a few cast copper coins were also found.

Period II was associated with various pottery-types (fig. 25), e.g. the dish with various rim-forms, the grey ribbed vessel with indentation on the shoulder above the rib, polished black jar with a flared high neck and everted rim, reddish dish with indented triangular design, knobbed lid and fine polished bowl, usually grey but sometimes black. The other finds included fragments of terracotta moulds (pl. LXVII B), probably for the jeweller's use, fragment of a carved ivory object, probably a casket, and a terracotta plano-convex sealing, the flat obverse with a tree-in-railing and a legend in Gupta script and the convex reverse with a few post-firing scratched letters in the same script. Period III was unimportant, with only a few significant pottery-types (fig. 25).

III. EPIGRAPHY

INSCRIPTION FROM AFGHANISTAN

NEW ROCK-EDICT OF ASOKA, AFGHANISTAN.—The inscription, discovered near Kandahar in Afghanistan, contains two versions of a new edict of Asoka, one in Greek and the other in Aramaic, issued when ten years of the king's reign had passed. Photographs of the inscription were received by the Government Epigraphist for India from the Societe Asiatique, Paris.

SANSKRITIC AND DRAVIDIAN INSCRIPTIONS[1]

ANDHRA PRADESH

1. EARLY CHALUKYA INSCRIPTIONS, DISTRICT ANANTAPUR.—Dated in the tenth year of the reign of king Vinayaditya Satyasraya (A.D. 690), an inscription from Virareddipalli records a gift of land by a Bana feudatory governing Vamganuru. An epigraph from Chandana, dated in the second regnal year of Vijayaditya Satyasraya Kattiraju (A.D. 696-733), son and successor of Vinayaditya, mentions a Bana feudatory as governing Ganga-Renandu and describes a gift of land by Choli-Mutturaju. Another record from Chandana mentions Kirttivarman as Vikramaditya-Kirttivarman, i.e. Kirttivarman the son of Vikramaditya, and refers to the king's Bana subordinate as ruling over the Suramara- or Turamara-*vishaya*. An epigraph in Telugu from Peddapeta attributes the title Anivarita to the king.

2. TELUGU INSCRIPTION, YADIKI, DISTRICT ANANTAPUR.—Engraved in Telugu characters of the sixteenth century, on the walls of the temples of Vishnu and Siva, some of these epigraphs record transactions related to the lending of money either by the temple-authorities or by private individuals. Some are of the nature of receipts for sums repaid with interest, while others are deeds cancelling the originals which were tampered with or found incorrect.

3. TAMIL INSCRIPTION, GAJULAPELLURU, DISTRICT CHITTOOR.—The inscription, palaeographically attributable to the fourteenth century and dated in the eighteenth regnal year of Rajagandagopala, records a grant by the king's subordinate Tiruvenkatanatha *alias* Nallasiddha.

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[1]Except nos. 16, 17, 23, 25, 26, 39 to 41, 43, 45, 46 and 48, all have been reported on by the Government Epigraphist for India; no. 24 has also been reported on by the Superintendent, South-eastern Circle, and nos. 33 and 34 by the Superintendent, South-western Circle, of the Department. No. 16 has been reported on by Dr. H. D. Sankalia, no. 17 by the Superintendent, South-western Circle of the Department, no. 23 by Shri P. P. Pandya, nos. 25 and 26 by Shri V. S. Wakankar, nos. 39 to 41 and 43 by the Director of Archaeology, Mysore, nos. 45 and 46 by the Superintendent of Archaeology and Museum, Orissa, and no. 48 by the Director of Archaeology and Museums, Rajasthan.

4. INSCRIPTIONS OF NARAYANADEVA PUDOLARASA, MUNDLAPUDI, DISTRICT CHITTOOR.—Written in Tamil, the record mentions the Chalukya chief Narayanadevan Pudolarasan, *alias* Kulottunga-sola Karupparudaiyan, also called Vengi-vallabha, Kanupparu-puravaradhisvara, etc., as a subordinate of Vikrama-chola and records a grant made by the former in the third year of Vikrama-chola's rule (A.D. 1121-22).

5. PRAKRIT INSCRIPTIONS, NAGARJUNAKONDA, DISTRICT GUNTUR.-One of these records is dated in the eighth year and another in the thirteenth year of the rule of the Ikshvaku king Vasithiputa Ehavala Chantamula.

6. INSCRIPTION OF KAKATIYA GANAPATI, MANTHANI, DISTRICT KARIMNAGAR.—The inscription (pl. LXVIII) records a number of transactions, the first of them being a grant of land made in Saka 1121 (A.D. 1199) by Allumprolaraja, governor of Chenuridesa, in favour of Manchi-bhattopadhyaya, the priest of king Ganapati. Mention is also made of Mallikarjuna already known from a Gaya ins-scription *(1957-58,* p. 53) to have been the preceptor, of Kakatiya Prataparudra I.

7. INSCRIPTION OF KULOTTUNGA PRITHVISVARA, DIMILI, DISTRICT VISAKHAPATNAM.—The inscription, dated Saka 1114 (A.D. 1192-93), records a gift of land, for a lamp to be burnt in the temple of Nagnesvara-Mahadeva at Dimili, by Saluvariti Narapa-nayaka. He was appointed governor of Dimili by Kulottunga Prithvisvara, son of Jayama-mahadevi.

8. EASTERN CHALUKYA RECORD, GOPALAPATNAM, DISTRICT VISAKHAPATNAM.—The inscription, dated in the thirtyfifth regnal year of Sarvalokasraya Vishnuvardhana-maharaja (probably Rajaraja I, A.D. 1022-63), refers to the provision made for a lamp in the temple of Pattisvara-Mahadeva.

9. EASTERN GANGA RECORD, RAVADA, DISTRICT VISAKHAPATNAM.— The inscription records a gift of five *madas* (of gold) to maintain a lamp in the local temple by Uttamaganga Dharma-setti, a merchant of Malaimandalam and by several others. It is written in Tamil and dated in the sixtyfifth year of the rule of king Anantavarmadeva (Chodaganga). The importance of the inscription lies in the fact that it demonstrates the contact of the merchants of the western coast of south India with the Visakhapatnam region.

10. KAKATIYA INSCRIPTION, HANAMKONDA, DISTRICT WARANGAL.— It is engraved on a rock at Komarapalli. a hamlet of Hanamkonda, and is dated in *saka* 1001, Siddharthin (A.D. 1079). It states that *Vikramachakrin Mahamandale-vara* Beta II granted some land, on the occasion of a solar eclipse, for the maintenance of a perpetual lamp in honour of the god Prolesvara. The gift was made free, from all taxes. This is the earliest record of the Kakatiya dynasty so far discovered.

11. INSCRIPTION OF GUNAGARASA, NARAYANAGIRI, DISTRICT WARANGAL.—The epigraph, in Kannada and dated Saka 928 (A.D. 1006), records the consecration of the deity Mallikarjuna by a certain Gangeyya, the *sumka-verggade* of the king. King Gunagarasa, belonging to the Satyasraya-*kula*, is eulogized in the epigraph as Rajavidyadhara, Tumgavedanga and Ekkalasahasa.

12. TWO POEMS BY NARASIMHA, WARANGAL.—One of the poems engraved on a huge rock in Nagari characters and attributable to the twelfth or thirteenth century, refers to itself as a work on *Yoga-sastra* by Narasimha-maharshi, son of *Rajaguru*

Visvesvara-*pandita*. The latter may be identical with the celebrated Visvesvara-Sambhu, the *diksha-guru* of Kakatiya Ganapatideva.

The other inscription, in Telugu characters, is a beautiful lyrical composition containing in all sixtytwo verses in the *sardulavikridita* metre. The composition is a graphic account of the love, separation and marriage of a *siddha* couple. Narasimha, the author of these two works, may be identical with his namesake, who figures in four previously-known short Sanskrit inscriptions from the same place.

13. RASHTRAKUTA INSCRIPTION, ZAFARGADH, DISTRICT WARANGAL.—Written in Kannada characters and assignable to the ninth century, the inscription, engraved on a rock near the temple of Narasimha on the fortified hill, eulogizes a Rashtrakuta king whose name is not clear. The discovery of a Rashtrakuta record in this area is interesting.

BIHAR

14. CHARTER OF JIVAGUPTA, DISTRICT DARBHANGA.-The inscription, received from Shri S. V. Sohoni, records the gift of a village in favour of a deity. King Jivagupta and his father Ramagupta are known for the first time from this record. The inscription is slovenly written in characters of the early medieval period.

15. ROCK-INSCRIPTION OF PRATAPADHAVALA, TARACHANDI, DISTRICT SHAHABAD.—Dated in Vikrama-*samvat* 1225 (A.D. 1169), the inscription records the announcement of *Mohanayaka* Pratapadhavala, the lord of Japila, to the effect that the Brahmanas of Svarnahala or Suvarnahala had bribed Deu, a servant of king Vijayachandra of Kanyakubja, and secured from him a forged copper-plate grant by virtue of which they were fraudulently enjoying two villages called Kalahandi and Vadayila. The document was signed by *Maharaja-putra* Satrughna.

BOMBAY

16. COPPER-PLATE GRANT OF NANNA AND CHANDRADITYA, HILOL, DISTRICT AHMADABAD.—Discovered at Hilol, about 8 miles east of Ahmadabad, the set of copper-plates records a gift of land made by *Mahasamanta* Chandraditya, to a Brahmana, Matrigana, son of Matrisvara and a resident of Sananda, during the rule of *Maharajadhiraja* Nanna. The land was near the village of Hilohila (modern Hilol). The grant was made on Tuesday, Margasirsha 7, *sukla*, in the year 470.

17. BRAHMI INSCRIPTIONS, PITALKHORA, DISTRICT AURANGABAD.—One of the two inscriptions records the gift of a native of Dhenukataka, while the other, engraved on a pilaster in Cave 4, the gift of a nun.

18. RASHTRAKUTA INSCRIPTION, BAHADURPUR, DISTRICT NANDER.—Written in northern characters • of about the tenth century, this fragmentary inscription mentions Dantidurga, Krishna I and other rulers of the Yadava, Rashtrakuta and Tunga lineages and records the grant of certain endowments in *drammas*.

19. INSCRIPTION OF SIDDHUGI, HOTTUL, DISTRICT NANDER.—Written in Nagari characters of *circa* eleventh century, the inscription records the construction

of a Siva temple by Siddhugi, a subordinate of the rulers of the Vahni-*kula*, who were themselves apparently feudatories of the Chalukyas of Kalyana. Siddhugi is stated also to have installed the god Sthanu at Kalyana, the city of king Somesvara.

20. TWO WESTERN CHALUKYA INSCRIPTIONS, TADKHEL, DISTRICT NANDER.—Dated respectively in Saka 969 (A.D. 1047) and 993 (A.D. 1070) in the rules of Trailokyamalla Somesvara I and Bhuvanaikamalla Somesvara II, the epigraphs introduce the chiefs Nagavarman and Kalimayya of the Vaji-*kula*. The former is credited with a number of conquests, while the latter bears the epithet Amaravatipuravaresvara.

21. JAINA INSCRIPTIONS, UKHALAD, DISTRICT PARBHANI.—There are about seventy inscriptions engraved on the pedestals of Jaina images with dates ranging from Saka 1506 to 1686 (A.D. 1584-1764) and Vikrama-*samvat* 1296 to 1669 (A.D. 1238-1611).

22. YADAVA INSCRIPTION, NAVSARI, DISTRICT SURAT.—Engraved on a hero-stone, the inscription records the death of a warrior in Vikrama-*samvat* 1359, Jyeshtha-*badi* 6, Monday (6th May 1303), during the rule of king Ramachandra.

23. BRAHMI INSCRIPTION, SAURASHTRA.—The inscription, discovered by Shri P. P. Pandya, consists of three lines of writing in the Brahmi script of the Kshatrapa period.

MADHYA PRADESH

24. CHARTERS OF THE SARABHAPURIYAS, MALLAR, DISTRICT BILASPUR.—Of the three sets, discovered by Shri M. Sivayya of the South-eastern Circle of the Department, the first set, issued in the ninth regnal year of king Jayaraja, registers the grant of the village of Mokkeppika situated in Nagarottara-*patta* (or *-patti)* by Vatsa, an officer in the king's service. The date of the charter is the latest of Jayaraja's reign so far known.

The second set, issued from Sripura by king Pravararaja in his third regnal year, records the grant of the village of Mitragramaka in Sankhachara-*bhoga*.

The third set (pls. LXIX and LXX), issued from Prasannapura by Vyaghraraja younger brother of king *Vxavara-bhattaraka* and son of Jaya-*bhattaraka*, records the grant of the village of Kuntuva-*padraka* in Purva-*rashtra*. The inscription is unique among the Sarabhapuriya records in many respects and throws new light on the history of the family.

25. GUPTA RECORD, DHARAMPURI, DISTRICT SEHORE.—A record of four lines in Gupta characters was found painted in the rock-shelter at Dharampuri near Bhopal by Shri V. S. Wakankar.

26. FRAGMENTARY INSCRIPTIONS, UJJAIN.—Three fragmentary inscriptions, found near the Mahakala temple, are now in the possession of Shri Surya Narayan Vyas. One of them mentions the victory of a Paramara king over Ayodhya, the other gives information of a battle fought by Ranarangamalla and the third is a piece of a Prakrit drama. All are in characters of the eleventh-twelfth centuries.

MADRAS

27. INSCRIPTION, SUCHINDRAM, DISTRICT KANYAKUMARI.—Dated Kollan 404 (A.D. 1228), the inscription records the re-organization of the *Brahmasvom* into eight divisions and stipulates the condition of service of the members of those divisions. It throws considerable light on the administration of the local temple.

28. INSCRIPTION OF SOLANTALAIKONDA VTRAPANDYA, SUCHINDRAM, DISTRICT KANYAKUMARI.-Written in Vattaluttu characters and dated in the fifteenth plus fourth regnal year of Solantalaikonda Virapandya, the inscription records a gift of money in *achchu* coins for two lamps, one for the deity Paramesvara of Tiruchchivindram and the other for Paramasvamigal of Tiruvengadattunilai, by Narayanan sri-Madhavan, *a kappiyan* of Perumarudur in Salagramam in Mahima-karavala *nadu.*

29. PADMANABHAPURAM MUSEUM INSCRIPTIONS, DISTRICT KANYA KUMARI.—The inscriptions record some details pertaining to the establishment of a refugee-colony *(anjinanpugalidam).*

30. INSCRIPTION OF MAHARAJA SURATTAN, VELANGUDI, DISTRICT RAMANATHAPURAM.—The epigraph is dated in A.H. 736 (A.D. 1335) and records a gift of land to a person for his heroic exploits in the days of the Muslim inva sion.

31. PALLAVA CHARTER, DISTRICT TANJAVUR.—Dated in the sixth reg nal year of Pallava Simhavarman (*circa* A.D. 550-75), the father of Simhavishnu, the inscription records the grant of lands in Amanserkkai and Tamar to the Jaina saint Vajranandin of Paruttikkunru. This is the earliest Tamil copper-plate inscription of the Pallavas of Kanchi.

32. PANDYA CHARTER, DALAVAYPURAM, DISTRICT TIRUNELVELI.—Dated in the fortysixth regnal year of Parantaka Viranarayana Sadaiyan, the inscription speaks of the king as the daughter's son of Pottapi-chola Srikantha. It gives the genealogy of the Pandya dynasty and mentions Varaguna as still ruling at the time of the grant.

MYSORE

33. SIVA-TEMPLE INSCRIPTION, JALASANGVI, DISTRICT BIDAR.-On the wall of the temple is a beautiful sculpture of a lady holding a plaque " inscribed with a Sanskrit verse in praise of Chalukya Vikramaditya. This indirectly furnishes the date for the construction of the temple.

34. KALACHURI GRANT, NIMBAL, DISTRICT BIJAPUR.—The charter is dated in the year Parabhava (A.D. 1186) in the reign of Sankamadeva, son of Sovideva, and records the gift of the village of Bobbulage in Ankulage-50, included in Tarikada-kampana, for the benefit of the temple of Kotisankara at Nimbahura.

35. COPPER-PLATE GRANT, NIMBAL, DISTRICT BIJAPUR.—This undated record, assignable on palaeographic grounds to the twelfth century, refers to the gift of certain toll-incomes in favour of the temple of Kotisankaradeva of Nimbahalla, by

five hundred *svamins* of Ayyavale together with the other trade-guilds and commercial bodies.

36. RASHTRAKUTA INSCRIPTIONS, DISTRICT DHARWAR.—An inscription, from Kachchavi, mentions Mara, a feudatory of king Dharavarsha Dhora, as governing over Banavasi-1200 and refers to his senior queen Appavineti. It records a gift of the tax on *ghee* to Maribbe of Kachchavi. Another record from Anaji mentions Lokate as governor of Vanavasinadu under king Amoghavarsha. Three inscriptions from Arlikatti, dated Saka 852 (A.D. 930) in the reign of the Rashtrakuta king Govinda IV, mention Machiyarasa of the Matura family.

37. YADAVA INSCRIPTION, KODAMAGGI, DISTRICT DHARWAR.—The record, probably dated in the fifteenth regnal year of Simhana, introduces the chief Bommidevarasa of Bamdanike of the Sinda family of Belagutti. Further, it refers to the death of a servant of this chief in a fight against the Hoysala raiders. These Sindas, who were formerly subordinates of the Hoysalas, figure here as serving their new masters, the Yadavas.

38. KALACHAURI INSCRIPTION, YEMMIGANPUR, DISTRICT DHARWAR.— The inscription is dated in the tenth regnal year (A.D. 1202) of Rayamurari Sovideva. It records that Sovi-setti, son of merchant Bammi-setti of Konamgeri, was proceeding towards the north in connexion with his business, when robbers fell upon him near a field at Annigere. Sovi died in a fight with them.

39. INSCRIPTION OF TAILA III, SHIRHALLI, DISTRICT GULBARGA.—The epigraph records the construction of three temples of Harihara to demarcate the boundaries of the Sirivalli *agrahara,* and the grant of thirtysix *mattars* of land for then-upkeep by *Dandanayaka* Vimaladitya and his brother Chandra, when *Mahamandalesvara* Sovarasa was ruling over Berani-500. It is dated in the fourth regnal year of the Western Chalukya king Trailokyamalladeva.

40. PILLAR-INSCRIPTION, SEDAM, DISTRICT GULBARGA.—The inscription, dated in the Ghalukya era, describes the genealogy of the Chalukya king Tribhuvanamalla and the country he ruled, Sedimba (Sedam) in particular. It also mentions the erection of a strong fort by Chandiraja.

41. HERO-STONE AND GARUDA-PILLAR INSCRIPTIONS, AGRAHARAVA-CHAHALLI, DISTRICT MANDYA.—These inscriptions in the courtyard of the Huni-sesvara temple record the names of several members of a family, who served the Hoysala rulers as bodyguards and died for the same cause.

42. WESTERN CHALUKYA INSCRIPTIONS, DISTRICT RAICHUR.—Out of the inscriptions from Navali, one, dated Saka 936 (A.D. 1014) in the reign of Vikramaditya V, furnishes the latest clear date for the king and thus narrows down the gap between his rule and that of his younger brother Jayasimha to about ten months. It mentions Jayasimha as governor of Ededore-2000. Another epigraph, dated Saka 989 (A.D. 1066), mentions the chief Marapermaladeva, who appears to have taken an active part in the war against the Cholas and the defeat of Rajadhiraja. It also introduces Nagavarmarasa, a Kadamba feudatory of the king, and indicates the penetration of the Kadambas, who originally belonged to Banavasi, as far as Raichur in the north. A third inscription, dated in the Chalukya-Vikrama year 44 (A.D. 1119) in the reign of Vikramaditya VI, mentions another Kadamba chief named Butarasa. A fourth record, dated in the Bhulokamalla year 19 (A.D. 1135) in the reign of Bhulokamalla Somesvara,

mentions Madhavattiarasa, son of Butarasa, as having jurisdiction on either side of the river Krishna.

An inscription from Halkavatigi mentions Kadamba Singarasa, probably a feudatory of Chalukya Vikramaditya VI.

Dated in the Chalukya-Vikrama year 45 (A.D. 1120), an inscription from Naga-vanda records the self-immolation of Bachiga of Nagarjjuna, modern Nagavanda, on the occasion of a solar eclipse and the erection of the memorial-pillar by Nagarasi-*pandita*, preceptor of the deceased.

43. JAINA IMAGE INSCRIPTION, DISTRICT SHIMOGA.—The inscription, occurs on the pedestal of a Parsvanatha image discovered near Shimoga and records details about a Jaina sect credited with the construction of a temple.

ORISSA

44. TWO COPPER-PLATE GRANTS, BARANGA, DISTRICT GANJAM.—One of the charters, issued from Sunagara by *Maharaja* Umavarman, records the grant of the village Hemandaka in Bhilingabhoga-*vishaya*, on the fifth day of the bright fortnight of Vaisakha in the sixth year of the king's reign. The second charter, issued from Vardhamanapura, records the grant of the village of Singhala on the thirteenth day of the first fortnight of *grishma* in the fifth regnal year of *Maharaja* Nanda-prabhanjana.

45. COPPER-PLATE GRANTS, PATHARAPARI HILL, DISTRICT GANJAM.—One of the charters was issued by Maharaja Jayavarmadeva, and the other by Samanta-varman, both of the Svetaka branch of the Ganga dynasty.

46. TWO COPPER-PLATE GRANTS, KHALIKOTA, DISTRICT GANJAM.—One is an inscription of a Bhanja ruler and the other of a Sailodbhava ruler. The grant of the Bhanja king is engraved over the writing of the Sailodbhava king.

RAJASTHAN

47. FRAGMENTARY INSCRIPTION, CHITORGARH.—Palaeographically assignable to the sixth century, the epigraph (pl. LXXI) seems to mention a *rajasthaniya* of Dasapura (modern Mandasor) and Madhyama (Madhyamika) and refers to one Varaha, a merchant named Vishnudatta and the temple of Manorathasvamin.

48. PANCHAYATANA-TEMPLE INSCRIPTIONS, ISWAL, DISTRICT UDAIPUR.—One epigraph, written in Vikrama-*samvat* 1242 (A.D. 1183-84), refers to the Guhila king Mathanasimha. The other one is dated in Vikrama-*samvat* 1161 (A.D. 1102-03).

UTTAR PRADESH

49. PRAKRIT AND SANSKRIT INSCRIPTIONS, MATHURA.—Of the two Prakrit records, one is dated in the fourth regnal year of the Kushan king Kanishka I. It is fragmentary but apparently records the installation of an image in a Buddhist monastery at Mathura. The other epigraph, also of the same age, is dated in the year 92, apparently of the Kanishka era. A Sanskrit inscription from the same place

is the lower fragment of a eulogy in verse composed by a poet named Ditta,. written in characters of *circa* fifth century. The inscription mentions a ruler called Nripa-mitra.

WEST BENGAL

50. IMAGE-INSCRIPTIONS IN A PRIVATE COLLECTION, CALCUTTA.—written in characters of *circa* ninth century, one of the epigraphs records the dedication of an image by Maninaga and the creation of an *akshaya-nivi* with a considerable amount of money counted in *pu,* i.e. *puranas.* Another inscription, palaeographically assignable to the tenth century, refers to the dedication of an image by *sthavira* Dharmamitra hailing from Vanga-*vishaya* and belonging to the Mulasarvastivada-*parishad.*

ARABIC AND PERSIAN INSCRIPTIONS1

RAJASTHAN

1. INSCRIPTION, AJMER.—This is an epitaph which records the death in A.H. 985 (A.D. 1577-78) of Mirza Muhammad Amin, who was the grandson, on his mother's side, of Ghazi Khan Badakshi, a well-known learned man and noble of Akbar's court.

2. INSCRIPTIONS OF THE MAMLUK (SLAVE) DYNASTY, BARI KHATU, DISTRICT NAGALTR.—The earliest inscription of the group, found fixed in one of the walls of the tomb of Shaikh Abu Ishaq Maghribi (popularly called Maghribi Shah) at Bari Khatu, is a record of Iltutmish. Noticed for the first time, it refers to the cons truction of a tank in the year A.H. 629 (A.D. 1232) by one Mas'ud, son of Ahmad, son of 'Umar al-Khilji. The other record, also a new one, is engraved on a loose slab lying in the same place and belongs to the reign of Ghiyathu'd-Din Balban. The epigraph in question is unfortunately fragmentary. The extant portion mentions a noble, viz. Saifu'd-Daulat wa'd-Din Malik-i-Muluki'sh-Sharq Ahmad (?) a's Sultani and bears the date the 11th of Jumadi II, A.H. 666 (27th February 1268).

3. INSCRIPTION OF FIRUZ TUGHLUQ, BARI KHATU, DISTRICT NAGAUR.—This is an epitaph of six martyrs, whose names are not mentioned; having displayed feats of valour in a religious war, they got themselves killed on the 1st of Shawwal, A.H. 761 (15th August 1360).

4. INSCRIPTION OF THE EARLY MUGHULS, BARI KHATU, DISTRICT NAGAUR.—These are three interesting new records composed and engraved by Mir Muhammad Ma'sum of Bhakkar, a well-known nobleman and *litterateur* of Akbar's court, and his son, Mir Buzrug, in the tomb of Maghribi Shah at Bari Khatu. The earliest of these is inscribed by Mir Buzrug, who is stated to have visited the holy tomb in the company of his father in the year A.H. 1008 (A.D. 1599-1600). In another inscription engraved by Muhammad Ma'sum himself, it is stated that he was permitted by the emperor (Akbar) to proceed to Iraq (as Iran was then generally called) as an

1 A11 have been reported on by the Assistant Superintendent for Arabic and Persian Inscriptions of the Department.

envoy in the year A.H. 1010 (A.D. 1601-02). The third inscription, though unsigned, is obviously by Mir Buzrug himself, who reports that he visited the holy tomb in the company of his father in the year A.H. 1013 (A.D. 1604-05) on the latter's return from Iran.

UTTAR PRADESH

5. INSCRIPTIONS OF FIRUZ TUGHLUQ.—An epigraph from Jaunpur records the building of a mosque by the great Khwaja Kamil-i-Khan Jahan in the year A.H. 765 (A.D. 1364). Another inscription, preserved in the Allahabad Museum, refers to the construction of a mosque carried out through the efforts of Bahadur, a servant of Maulana Siraju'd-Din, the deceased, on the fourteenth of Safar of the same year (22nd November 1363). Two other inscriptions, found in the city of Varanasi, one in prose and the other in verse, are identical in contents. They record the cons truction of a mosque, the dome of the *dahliz, hujra*, steps, reservoir and compound-wall of the precincts of Sayyid Fakhru'd-Din 'Alawi, the martyr, by Diyau'd-Duwal, son of Ahmad, on the 1st of Rabi' I, A.H. 777 (31st July 1375).

6. INSCRIPTIONS OF THE SHARQIS OF JAUNPUR.—A fragmentary inscription from Belgram, District Hardoi, refers to the construction of the Jami' mosque of the town by Malik 'Ali, son of Shams, during the reign of Ibrahim Sharqi. Another inscription from the same place is found carved on a loose slab, though its exact findspot is not known. Dated A.H. 845 (A.D. 1441-42), in the reign of Mahmud, son of Ibrahim Sharqi, it refers to the renovation of a structure by Malik Manek Bhatti of Bhatner, who is mentioned as a companion of Khan-i-A'zam Fath Khan Hirewi.

7. MISCELLANEOUS INSCRIPTIONS.—An epitaph from Varanasi records the death of the chief of nobles, Natthan, son of Hizibr, in the year A.H. 880 (A.D. 1476). A second one, from Lucknow, forms the chronogram yielding A.H. 961 (A.D. 1533-34) for the death of the celebrated saint Shaikh Ibrahim Chishti.

WEST BENGAL

8. INSCRIPTIONS OF SULTANS OF BENGAL.—TWO inscriptions, which were removed from Kalna, District Burdwan, to the Indian Museum, Calcutta, last year, were found on examination to be interesting. One of them, belonging to the reign of 'Alau'd-Din Husain Shah, refers to the construction of a mosque in A.H. 918 (A.D. 1512-13) by Majlis Jatwar, son of Taifur Khan, son of Haibat Khan. The second inscription, the only other record so far known of Sultan 'Alau'd-Din Firuz Shah, son of Nusrat Shah, is identical in text with the previously-known epigraph of that monarch, housed in the same Museum.

IV. NUMISMATICS AND TREASURE-TROVE 1

BOMBAY

1. MUGHUL COINS, SIROCHA, DISTRICT CHANDA.—Five silver coins of Akbar and a *sikka* of Aurangzeb were found.

2. SILVER COINS OF KUMARAGUPTA, MAHUDI, DISTRICT SURAT.—A large hoard of silver coins, mostly of Kumaragupta of the Imperial Gupta line, was reported.

3. GADHAIYA COINS, SATARPADA, DISTRICT WEST KHANDESH.—Nineteen silver Gadhaiya coins were found.

DELHI

4. MEDIEVAL COINS, DELHI. -A copper jar containing a large hoard of coins of Govindachandra of Kanauj and Muhammad I bin Sam was found in the course of a digging of a soak-pit in the Qutb area. Most of the coins were of silver, and the remaining of base gold.

MADHYA PRADESH

5. EARLY AND LATE COINS, BALPUR, DISTRICT BILASPUR—Two Coins of the Satavahanas, three of the Kalachuris and one with the name Vikramasai, evidently a late chief of the Haihaya dynasty of Ratanpur, were found.

MADRAS

6. FINDS OF METAL IMAGES AND UTENSILS.—The Government Museum, Madras, acquired twentyfive metal images and three metal utensils as treasure-trove finds.

MYSORE

7. GOLD AND COPPER COINS, DODDABALLAPUR, DISTRICT BANGALORE.—Nine gold coins and one copper coin were discovered. Of them, two were of the Mughuls, five of the *varaha* type and three of local Nayaka rulers.

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information from : nos. 1 and 5, the Superintendent, South-eastern Circle of the Department; no. 2, the Superintendent, Western Circle of the Department; nos. 3 and 9, the Superintendent, South-western Circle of the Department; no. 4, the Superintendent, North-western Circle of the Department; no. 6, the Superintendent, Government Museum, Madras; nos. 7, 8 and 10, the Director of Archaeology, Mysore; and nos. 11-19 the Director, State Museum, Lucknow.

8. VIJAYANAGARA COINS, KENCHANAHALLI FOREST, DISTRICT BANGALORE.—Five gold coins—four Viraraya-*fanams* and one a half-*varaha* of the Vijaya-nagara period—were discovered.

9. GOLD COIN OF AURANGZEB, KOLHAR, DISTRICT BIJAPUR.—The coin was issued in the thirtyfourth regnal year of Aurangzeb and minted at Akbarabad.

10. GOLD COINS, CHANNAPPANAPUR, DISTRICT MYSORE.—Of the twenty-four coins found, all were of the late Vijayanagara rulers, viz., Achyutaraya and Sadasivaraya, nineteen of the Lakshmi-Narayana and five of the Ganda-bherunda types.

UTTAR PRADESH

11. MUGHUL COINS, MAHALLA QABULPURA, DISTRICT BUDAUN.—Nine silver and one thousand and two copper coins were found.

12. MUGHUL COINS, PHARAULI, DISTRICT ETAH.—A hoard of thirtysix copper coins was found.

13. COINS OF THE SULTANS OF DELHI, FIROZPUR, DISTRICT FAIZABAD.—Twentyone silver and four hundred and fortyone copper coins were discovered.

14. MUGHUL COINS, DULLAPUR, DISTRICT FAIZABAD.—A hoard of one hundred and seventyfour silver coins was discovered.

15. MUGHUL COINS, MALIHABAD POLICE STATION, DISTRICT KANPUR.—Fortyfive silver coins were reported.

16. LATE MUGHUL COINS, KALI-KALAWARI, DISTRICT KANPUR.—A hoard consisting of twentyone coins was found. It included seven coins of Shah ' Alam II, one of them a rupee issued from Banaras Muhammadabad and bearing the date at the bottom instead of the top, and the other six bearing mint-marks unknown before.

17. SILVER ORNAMENTS, RAMAIPUR, DISTRICT KANPUR.—Old silver ornaments, some of them broken, were found in two *handis*.

18. COINS OF THE SULTANS OF DELHI, JHABBA KHERA, DISTRICT LUCKNOW.—The hoard consisted of four hundred and ten copper coins.

19. MISCELLANEOUS HOARDS.—They included three gold, ninetyfive silver, two hundred and fortytwo silver alloy and four hundred and sixtyone billion coins, variously belonging to the Indo-Sassanian, Delhi Sultan, Mughul, Durrani and British rulers and Indian States, besides punch-marked ones.

V. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. STONE CIRCLES IN DISTRICT HYDERABAD.—Twentyone stone circles, 22 to 35 ft. in diameter, were discovered at Koisaram in Medchal Taluk by Dr. P. Sreenivasachar. Besides, a group of thirtyfive circles was noticed near Balajigutta.

2. EARLY HISTORICAL SITE IN DISTRICT SRIKAKULAM.—At the famous ancient port of Kalingapatam Shri M. Venkataramayya discovered a few sherds of the megalithic Black-and-red Ware and a black-and-grey ware trailed in white (kaoline) paint under a black slip, one of them rouletted.

3. EARLY HISTORICAL SITE IN DISTRICT WEST GODAVARL—A habitation-site with fine black polished ware and red ware, seemingly megalithic, was found at Denduluru by Shri M. Venkataramayya.

4. MEDIEVAL IMAGES IN DISTRICT WEST GODAVARI.—An image of *nandin* was discovered in the compound of the District Board High School, Nidadavolu, and was examined by Shri M. Venkataramayya. The image, in black basalt, was 4 ft. long and was profusely ornamented. It bore a two-line inscription in the tenth-eleventh century characters.

A late Vijayanagara metal image of Maha-Vishnu was found at Denduluru. The inscription on its pedestal referred to the deity as Chennakesava.

BIHAR

5. N. B. P. WARE IN DISTRICTS BHAGALPUR AND SARAN.—The Northern Black Polished Ware was discovered at Nathnagar and Cherand, respectively in Districts Bhagalpur and Saran, by Dr. K. C. Panigrahi and Shri A. D. P. Singh.

6. STUPAS IN DARBHANGA AND MONGHYR DISTRICTS.—Ruins of *stupas* of mud bricks, similar to those at Lauriya-Nandangarh in District Champaran, were noticed at Saterh-Lakshmipur in District Darbhanga and Jaimangalagarh in District Monghyr by Dr. K. C. Panigrahi.

BOMBAY

7. PALAEOLITHS AND HISTORICAL ANTIQUITIES IN DISTRICT AMRAOTI.—Shrimati Shobhana Gokhale discovered sherds of the black-and-red ware, conch bangles, beads, large-sized bricks and other antiquities at Kundinpur. The site was again examined by Dr. S. B. Deo and Shri Z. D. Ansari, who found, in addition, tools of Series I and II and painted pottery.

8. EARLY HISTORICAL SITE IN DISTRICT AURANGABAD.—A site, with two mounds, about 70 ft. high, with pottery with a dull-red slip and the early

historical black-and-red ware, together with a few sherds with Roman affinities, was found at Bhokardhan by Shri M. N. Deshpande. The site may represent Bhogavardhana mentioned in an inscription at Sanchi.

A few tools of Series II were also collected from the surface.

9. BUDDHIST CAVES, PITALKHORA, DISTRICT AURANGABAD.—During further clearance *(1957-58,* p. 65), these caves yielded four more reliquaries, three of them *stupa*-shaped and the fourth like a ring. All of them were recovered from oblong sockets cut into the basement of the partly rock-cut and partly structural *stupa* in Cave 3, the main *chaitya*-hall. New features of Cave 4, the main *vihara,* along with a number of loose sculptures and architectural pieces, came to light.

10. MICROLITHS IN DISTRICT BANASKANTHA.—Shri R. T. Parikh collected microliths, comprising fluted cores, points and blades, from the section and bed of the Banas near Rampura.

11. MICROLITHIC AND EARLY HISTORICAL SITES IN DISTRICT BROACH.—Shri K. V. Soundara Rajan discovered microlithic tools, of the chalcolithic context, from Vejalpur on the Narmada, 4 miles towards the sea from Broach. The mound near Broach (ancient Bharukachchha) on the Narmada yielded some chert flakes, black-and-red pottery and the Red Polished Ware; many ring-wells were also noticed.

12. CHALCOLITHIC AND EARLY HISTORICAL SITES IN DISTRICT EAST KHANDESH.—A chalcolithic site, with painted black-on-red pottery, similar to that of Savalda (p. 24), was found at Chitegaon.

At Nimkhed sherds of the black-and-red ware of the early historical period were collected.

13. HARAPPAN SITE IN DISTRICT HALAR.—Shri P. P. Pandya discovered a Harappan site near Rasnal.

14. MICROLITHS IN DISTRICT JHALAWAR.—Fluted cores and blades of chalcedony and scrapers of jasper were found by Shri S. R. Rao at Goriya in Sayla Taluka.

15. MICROLITHIC SITE IN DISTRICT K.AIRA.—Shri K. V. Soundara Rajan discovered a rich microlithic site, 11 miles off Kapadvanj, with a concentration of tools on an eroded and exposed 20-ft. wide terrace. A few tools were also picked up from the gravel-bed of the river. Prepared-platform flake-tools, cores and a burin, on chocolate-coloured chert and plain and banded agate formed the collection. On the heavy deposit of loessic loam, overlying the terrace and forming the main cliff-section, a blade, point and core, respectively on quartz, chert and agate, were found.

16. PALAEOLITHS IN DISTRICT MADHYA SAURASHTRA.—Shri S. R. Rao found tools of Series II—scrapers of chalcedony and agate—at Thoriali on the Goma in Jasdan Taluka.

17. MICROLITHIC SITE IN DISTRICT MADHYA SAURASHTRA.—Shri K. V. Soundara Rajan discovered a few tools, relatable to Series II, in the bed of the Venu near Moti Paneli. A few patches of gravel were also noticed on the river-bank.

18. MICROLITHIC SITE IN DISTRICT MADHYA SAURASHTRA.—A microlithic site was discovered near Ramnod by Shri P. P. Pandya.

19. EARLY HISTORICAL SITE IN DISTRICT MADHYA SAURASHTRA.—A small low-lying mound known as Hanumanji-no-timbo was found near Virnagar in Jasdan Taluka by Shri S. R. Rao. It yielded the Red Polished Ware.

20. BUDDHIST CAVES IN DISTRICT MADHYA SAURASHTRA.—Shri P. P. Pandya discovered groups of Buddhist caves (pl. LXXII A) at Khambhalida, ascribable, on grounds of the sculptural style, to the third-fourth century. The second group seemed to be the most important: it consisted of three caves, the central one of which was the *chaitya*-hall flanked by large sculptures representing the Bodhisattvas and devotees under the shelter of trees and having a worn-out *stupa* at its apsidal end.

21. LATE MEDIEVAL MURALS IN DISTRICT MADHYA SAURASHTRA.——On the walls of a small room in old Darbargah, Dhoraji, Shri P. P. Pandya noticed beautiful but neglected paintings of the late eighteenth century, depicting the royal assembly, procession, warriors, lady-in-worship, palaces, lakes, etc.

22. CHALCOLITHIC SITE IN DISTRICT NASIK.—Shri M. N. Deshpande discovered at Katarpada, on the Girna, a site with the chalcolithic painted black-on-red pottery and the black-and-red ware of the early historical period.

23. MICROLITHIC SITE IN DISTRICT PANCHMAHALS.—Shri K. V. Soundara Rajan discovered a microlithic site at the foot of the hill at Pavagadh yield ing backed blades and cores, related to similar tools found further down the Viswamitri. He also discovered a very rich site adjacent to the Mahadeva temple at Bavka. The site had prolific varieties of cores, blades, scrapers and almond-shaped points on chert and chalcedony. Some palaeolithic tools would also seem to occur in the vicinity.

24. TEMPLE-REMAINS IN DISTRICT PANCHMAHALS.—A site with large brick structures, remains of a brick temple and stone images of late Gupta and early medieval periods was noticed by Shri V. S. Wakankar at Jalad near Dohad.

25. PALAEOLITHIC AND MICROLITHIC SITES IN DISTRICT SABARKANTHA.—Shri K. V. Soundara Rajan collected a few palaeolithic tools, including an ovate in Vaal technique, from the gravelly flood-plain terrace of the Majham river off Modasa. They were generally made on fine-grained quartzite, not available locally.

In the vicinity of the group of ninth-century temples at Roda was picked up a crested-ridge flake.

26. EARLY HISTORICAL REMAINS IN DISTRICT SORATH.—In the course of the removal of a 3- to 4-ft. deposit of earth from the top of the Buddhist caves at Uparkot, Junagadh, the original features of the caves were brought to light, such as long drains with shutter-sockets at different stages to divert water towards rock-cut pits and wells, a drain-opening leading to storage-wells inside the caves, stone walls and post-holes on the rock-surface—all indicating that the cave-roof had been put to residential use. A storage-well in the south-west corner went down to a depth of 50 ft. In the excavated deposit and in rock-cut wells and pits were found the Red Polished Ware, Kshatrapa coins of lead largely belonging to Rudrasena II (348-78) (pl. LXXIII B), terracotta figurines, including *yakshas* (pls. LXXII B and LXXIII A), sealings, *bullae* (pl. LXXIII C) with *yaksha* and a Kshatrapa ruler, stone carvings, beads, indeterminate objects of gold and a spouted and carinated jar of bronze. The datable objects pertain broadly to the second half of the fourth century.

A terracotta figurine was reclaimed from the debris around the Khapra-kodia caves at Junagadh. Ascribable to the second-third century A.D., it had similarity with the statue of Kanishka from Mathura on the one hand and with the Scythian warrior from Nagarjunakonda on the other.

27. EARLY HISTORICAL FINDS IN DISTRICT SURAT.—The black-and-red ware and other pottery, besides large bricks and copper punch-marked coins, were found at Kamrej.

28. JAINA CAVES IN DISTRICT WEST KHANDESH.—Shri S. A. Sali discovered a group of Jaina caves at Mohida-tarf-haveli on the Gomai. Being excavated in the bed-rock of the river, the roofless caves usually remain rilled with water and debris. The first cave, containing images of *tirthankaras* in niches, consisted of an oblong hall leading to the *garbha-griha* which had an image, probably of Adinatha, as the main deity and other *tirthankaras* on the walls. Cave 2 was an irregular oblong hall with similar images. The *garbha-griha* contained an image.

DELHI

29. VISHNU IMAGE IN DELHI.—A four-armed Samkarshana image of Vishnu in black stone (pl. LXXIV A) was found to the south-east of the Qutb-Minar, slightly below the surface. A Sanskrit inscription below the feet of the image gave *samvat* 1204 (A.D. 1147) as the date of its installation by a merchant of Rohitaka (Rohtak). Close to the findspot of the image was a stone platform, on which was marked the exterior plan of a *pancha-ratha* shrine.

MADRAS

30. CAIRN-CIRCLES IN DISTRICT COIMBATORE.—Cairn-circle were noticed in Palladam Taluk by Shri V. N. Srinivasa Desikan.

31. URN-BURIALS IN DISTRICT MADURA.—Shri B. K. Gururaja Rao found an extensive urn-burial site at Gopalasamiparambu.

32. URN-BURIAL AND HISTORICAL SITES IN DISTRICT SOUTH ARCOT.—Shri B. K. Gururaja Rao found megalithic burials with pyriform urns at Porearkoil near Perumalnaickenpalayam, Tulukanveli near Melapattambakkam and Nattamedu near Pagandai. He also discovered an early historical site, probably of Pandyan times, at Kurumbar-kottaimedu on the river Gadilam.

MADHYA PRADESH

33. SCULPTURES IN DISTRICT BHILSA.—Gupta and post-Gupta remains were found by Dr. Klaus Bruhn at Chhapara and Parsora (pl. LXXV A and C) on the way from Pathari to Sanai. About a mile to the east of Parsora was noticed a group of monuments, known at Sat-Madiya. They included a post-Gupta shrine, several primitive caves, each with a *linga,* and a large number of weather-worn rock-cut Gupta images, mostly Vaishnava (pl. LXXV B). Another small post-Gupta shrine was found in the outskirts of Chhapara.

34. BUDDHIST SCULPTURES IN DISTRICT BILASPUR.—Shri M. Sivayya discovered at Nandaur Khurd, near Sakti, an inscribed image of Bodhisattva with the Buddhist creed inscribed on it in characters of the eighth-ninth century (pl. LXXIV B).

35. ROCK-CUT SCULPTURES IN DISTRICT DHAR.—Shri V. S. Wakankar noticed rock-cut sculptures representing Trivikrama, Ganesa, Brahma and Siva-Parvati in the midst of the Narmada at Piploda.

36. PALAEOLITHS AND CAVES IN DISTRICT GWALIOR.—Shri V. S. Wakan kar found a palaeolithic site and early medieval rock-cut caves at Barha near Gwalior.

37. PALAEOLITHS IN DISTRICT JABALPUR.—Shri V. S. Wakankar found tools' of Series II at Bheraghat, Gwarighat and Jabalpur.

38. GARUDA PILLAR, DISTRICT JABALPUR.—Dr. S. L. Katre discovered a Garuda pillar of eleventh-twelfth century at Khama.

39. ROCK-SHELTERS IN DISTRICT MANDASOR.—Rock-shelters with paintings were discovered at Takshakeswar, Kedareswar and Indragarh by Dr. H. V. Trivedi assisted by Shri V. S. Wakankar.

Shri V. S. Wakankar and others, on behalf of the Bharati Kala Bhawan, Ujjain, surveyed an area of nearly 200 sq. miles of land in the Chambal valley, to be submerged in 1960 as a result of a dam under construction. More than a hundred painted rock-shelters were noticed and the paintings therein copied. In the foreground of these rock-shelters were noticed large palaeolithic and microlithic sites. The palaeoliths included handaxes, cleavers, borers, ovates and discoids.

40. PALAEOLITHS IN DISTRICT NIMAR (WEST).—Shri V. S. Wakankar found tools of Series II at Barwani.

41. MICROLITHS IN DISTRICT NIMAR (WEST).—Shri M. U. Quraishi found microliths, including cores, from the locality of Un.

42. PALAEOLITHS IN DISTRICT SAGAR.—Dr. A. P. Khatri found an implementiferous well-cemented gravel on the Sonar near Gorha Kota. He also found three tools (including one pebble tool) *in situ* in that deposit. He also collected palaeoliths from the bed of the same river at Raheli.

43. ROCK-PAINTINGS AND MICROLITHS IN DISTRICT SAGAR.—Dr. M. G. Dikshit discovered two groups of rock-shelters with paintings in red ochre near Nariavli, 8 miles from Sagar. The paintings represented domestic and battle scenes and horse-riders. Several microlithic tools were collected from the vicinity of Sagar. Fluted cores, crescents, trapezes, variously in agate, chalcedony and jasper, formed the main bulk, the largest number being from Chandala Bhata, a large site 2 miles from Sagar.

44. TEMPLE IN DISTRICT SAGAR.—Dr. H. V. Trivedi found a large temple of Kalachuri period at Piparia. No remains of the Kalachuri dynasty had so far been known as far west as Sagar District.

MYSORE

45. CHALUKYAN TEMPLE IN DISTRICT BIDAR.—A beautiful temple in Chalukyan style, probably built in the time of Vikramaditya VI, was found by Dr.

M. Seshadri at Jalasangvi, Humnabad Taluk. Its outer walls had a row of artistic sculptures in different attitudes.

46. JAINA SCULPTURES IN DISTRICT SHIMOGA.—Dr. M. Seshadri noticed eighteen images of Jaina *tirthankaras* near Shimoga, all deposited underground but now accidentally brought to light. They were in early Hoysala style with exuberant carvings.

ORISSA

47. JAINA SCULPTURES IN DISTRICT CUTTACK.—At Chasakhanda near Baitarani Road many Jaina images were found by Shri B. V. Nath.

48. BUDDHIST SCULPTURES IN DISTRICTS CUTTACK AND KEONJHAR.—Shri B. V. Nath found many images of Avalokitesvara in Anandapur Sub-Division, at such places as Fakirpur, Bancho, Baunsagada and at the foot of the Baula hill.

49. NEOLITH AND MICROLITHS IN DISTRICT KEONJHAR.—Shrimati D. Mitra and Shri S. K. Ghosh found a fairly large number of microliths, mostly on chert and flint, cores and waste flakes, near Danguapasi, at the foot of the hillocks, one of which is already known for the paintings and a painted inscription that it contains. Nearby was found a neolithic celt of greenish-buff sandstone by Shri S. K. Ghosh. It may be recalled that two celts had previously been reported from this area.

50. BRICK TEMPLE IN DISTRICT KORAPUT.—Shri A. Joshi found at Sunghli an early brick temple with two chambers. The bricks measured 14 in. x 7 in. x 3 in.

51. MICROLITHS IN DISTRICT PURL—A number of microliths, includ ing blades and lunates, were collected from near the famous Hathi-gumpha at Udayagiri by Shri S. K. Ghosh.

52. MEDIEVAL ANTIQUITIES IN DISTRICT PURL—Near Barapari on the Chilka Lake Shri B. V. Nath found an inscription of *circa* tenth century in a tank, as also a Siva temple and a boundary-pillar.

PANJAB

53. HARAPPAN OBJECTS IN DISTRICT BHATINDA.—Shri R. P. Das found pottery-pieces representing the dish and perforated jar, triangular terracotta cakes and steatite disc-beads—all recalling the Harappan tradition—at Raja Sirkap, 2 miles to the south of Faridkot, already known for its early historical material, such as the Rangmahal Ware.

RAJASTHAN

54. SCULPTURES IN DISTRICTS AJMER AND BHARATPUR.—Dr. R. C. Agrawala found Kushan reliefs, one from near Nand, District Ajmer, and another from Noh, District Bharatpur (pl. LXXVI A). He also found m the Bharatpur region a sculpture depicting the marriage of Siva and Parvati.

55. PALAEOLITHS IN DISTRICT BARMER.—Shri N. M. Ganam found tools of Series II made on fine-grained jasper along a dried-up river-bed near Barka and Juna.

56. MICROLITHS, ETC., IN DISTRICT JAIPUR.—Shri R. C. Agrawala found microliths and a black-and-cream ware at Rairh.

57. PAINTED GREY WARE IN DISTRICT JAIPUR.—Shri K. N. Dikshit found sherds of the Painted Grey Ware at Jodhpura on the right bank of the Sabi, on a tributary of which Bairat, already known as a site of that Ware, is situated.

58. PALAEOLITHS IN DISTRICT JHALAWAR.—Shri V. S. Wakankar found tools of Series II at Gajraun.

59. MICROLITHIC SITES IN DISTRICT JODHPUR.—Shri K. V. Soundara Rajan found microlithic tools on chert and quartz on an eroded ferruginized surface, 4 miles from Bilara on the road to Jodhpur.

Shri N. M. Ganam picked up microlithic tools on jasper from a site 2 miles from Umednagar in Tahsil Osia. The tools were severely wind-polished, with their retouched edges smoothened.

60. SCULPTURES IN DISTRICT TJDAIPUR.—Dr. R. C. Agrawala found a headless Jaina image near Kalyanpur and medieval stone reliefs at Ahar, the latter representing the Fish- and Tortoise-incarnations.

Dr. Agarwala also found a dancing Varahi sculpture, in greenish-blue schist, of the early medieval period and bearing affinities to the Idar group.

UTTAR PRADESH

61. MICROLITHIC SITE IN DISTRICT AGRA.—A microlithic site, with blades, points, etc., of carnelian, agate and other varieties of quartz, was discovered by Shri S. C. Chandra near Khera in the vicinity of Fatehpur-Sikri.

62. PAINTED GREY AND N. B. P. WARES IN DISTRICT AGRA.—The Painted Grey and Northern Black Polished Wares were found at Sauripur in Bah Tahsil by Shri D. P. Agrawala.

63. MISCELLANEOUS ANTIQUITIES IN DISTRICT ALLAHABAD. Dr. S. C. Kala discovered several sites. At Mahnydih, in Phulpur Tahsil, a few pieces of the Northern Black Polished Ware and fragments of Gupta terracottas were recovered. The site of Diha, in Karchana Tahsil, now being cut away by the Ganga, yielded a small medieval head of Vishnu. Five fragments of an eighth-century gateway were found at Uchdiha, in Soram Tahsil.

64. SITES WITH THE PAINTED GREY WARE AND OTHER ANTIQUITIES IN DISTRICT BULANDSHAHR.—Shri R. C. Sharma found medieval Brahmanical sculptures at Bakaura, 8 miles east of Bulandshahr. Another 10 miles further south-east he discovered door-jambs of a medieval temple.

65. EARLY MEDIEVAL SCULPTURES IN DISTRICT ETAH.-Shri S. C. Chandra found a large number of early medieval sculptures, mostly representing Brahmanical deities, in Etah Tahsil; at Bansa alone as many as one hundred and fourteen sculptures were noticed.

66. N. B. P. WARE IN DISTRICT FATEHPUR.-The Northern Black Polished Ware was found at Bindual, Moraon, Tickar and Kilarman by Shri S. C. Chandra.

67. SCULPTURAL REMAINS IN DISTRICT JHANSI.—A number of sculptures —Gupta, post-Gupta and medieval—were noticed by Dr. Klaus Bruhn in the vicinity of Deogarh. The most interesting of them were a torso and an image of Krishna Govardhana-dhara (pl. LXXV D), both of Gupta age.

68. SCULPTURES IN DISTRICT KUMAON.—Shri S. C. Chandra discovered a large number of sculptures, particularly at Jageswar, Baijnath and Dwarahat, mainly falling under the three following chronological categories: (i) eighth-ninth centuries, (ii) twelfth-thirteenth centuries, and (iii) seventeenth century. The following were particularly noteworthy: Parvati, Vishnu in the *visva-rupa* form, Kaka-Bhusundi, Mahisha-mardini (pl. LXXVI B) and a mass of sculptured friezes.

69. SITES WITH THE PAINTED GREY WARE IN DISTRICT MEERUT.—Dr. Y. D. Sharma found the Painted Grey Ware at Pura on the right bank of the Hindon, 18 miles west of Meerut. At Baleni, 2 miles south, were found sherds of a fine grey ware, seemingly of the Painted Grey Ware assemblage.

70. EARLY TERRACOTTAS IN DISTRICT SITAPUR.—Shri J. P. Gupta found' terracottas in the Sunga style at Langhania in Tahsil Sitapur.

71. N. B.P. WARE IN DISTRICT VARANASI.—The Northern Black Polished Ware was found at Baigar in Chakia Tahsil.

VI. MUSEUMS

1. RAJPUTANA MUSEUM, AJMER.—The acquisitions included a seated headless image of Chandraprabha, the eighth Jaina Tirthankara, with a three-line inscription on the pedestal, bearing the date *samvat* 1209 (A.D. 1152-53), a miniature female figure from Pushkar and the bust of a stone figure attributable to *circa* twelfth century. A published set of two copper-plates forming a grant of Maharaja Sarvanatha, issued from Uchchakalpa and dated in the year 191 (A.D. 440, if referred to the Chedi-Kalachuri era), was received as a gift. Two punch-marked coins from Nagari, District Chitorgarh, and a coin of Aurangzeb, dated A.H. 1116, *Julus* 48, mint Daru'l Khair, Ajmer, were added to the coin-cabinet.

2. ALLAHABAD MUSEUM, ALLAHABAD.—The following acquisitions from Allahabad District were noteworthy: a small reddish sandstone object with a shining polish, attributable to the Mauryan period, a beautiful terracotta female head (pl. LXXVII A) and a number of seals, some inscribed, from Jhusi; an inscribed seal and an *eka-mukha-lingd* of stone (*circa* eighth century), from Bhita; and a number of antiquities, one of them an ivory seal bearing the legend *Vangapala,* from Kausambi. The objects recovered in the exploration in Allahabad District (p. 74) were included in the Museum. Seven Kushan and Gupta gold coins were added to the coin-cabinet, besides a few other specimens including one each of Ramabhadra and Ramagupta.

3. MUSEUM, AMBER.—The acquisition included one Kushan stone relief and a terracotta plaque from Noh, District Bharatpur.

4. MUSEUM AND PICTURE GALLERY, BARODA.—Six early medieval sandstone images of *matrikas* (pl. LXXVII B) and two images of Vishnu and Ganesa were acquired from District Banaskantha. Descriptive catalogues were prepared of the prehistoric and other archaeological objects in the Museum.

5. STATE MUSEUM, BHUBANESWAR—The acquisitions included one hundred and twelve palm-leaf manuscripts, twentyeight temple repousse work, four sets of copper-plates and four chlorite images, two each of Jaina Tirthankaras and Padmapani.

6. GANGA GOLDEN JUBILEE MUSEUM, BIKANER.—Twelve paintings of the Bikaner School were acquired.

7. ARCHAEOLOGICAL MUSEUM, BODH-GAYA.—Twentyeight stone sculptures of the early and late medieval periods were acquired. To provide additional exhibition-space, a new room is being added to the existing building.

8. PRINCE OF WALES MUSEUM OF WESTERN INDIA, BOMBAY.—The additions to the Archaeological Section included ten bas-reliefs of railings and gateways of a *stupa,* said to have been found in the neighbourhood of Bharhut and received as presents. Attention is being paid to the re-arrangement of the exhibits.

9. ASUTOSH MUSEUM OF INDIAN ART, CALCUTTA.-The Museum was greatly enriched by the acquisition of objects numbering over three thousand. The majority of them were derived from explorations done in continuation of the last year's work at Chandraketugarh and Harinarayanpur, District 24-Parganas, and Tamluk

and Panna, District Midnapur *(1957-58,* pp. 51, 69 and 72), and also from the newly-surveyed sites of Hariharpur and Mahinagar, about 7 miles from South Calcutta, and Betor near Howrah. The remaining ones were acquired through gift or purchase.

Chandraketugarh (also p. 56) yielded a large number of terracotta figurines of the Sunga-Kushan periods characterized by distinctive costumes and jewellery. The noteworthy among them were: a *yakshi* with elaborate treatment (pl. LXXIX A), similar to the famous Tamluk terracotta at Oxford; a rare *dampati* plaque (pl. LXXVIII A) recalling cognate types from Ahichchhatra; a toy-cart with a divine couple under a shrine; an unusual female figure holding a pair of fish; a plaque showing two warriors in Graeco-Roman cuirass throwing round and square coins; and a plaque with *kin-naras* and *dik-palas* (pl. LXXVIII D).

The antiquities from Harinarayanpur comprised about two thousand beads of precious and semi-precious stones, an ivory seal depicting the mother-goddess and terracottas (pl. LXXVIII B) ranging in date from the Sunga to Gupta periods. In addition, a polished stone axe, sherds of the Rouletted Ware and with thumb-nail and incised designs and seals with deer were also collected.

The finds from Tamluk consisted of pottery vases with ring-bases and narrow necks and terracotta figurines of the Sunga-Kushan periods, including *yakshis* (pl. LXXXVIII C), and a plaque depicting a damsel dancing before a throned personage with a *vina* (pl. LXXVIII E).

Interesting terracottas were also acquired from Panna (pl. LXXVII C and D) and Tilda: from the former place was collected an almost life-size male head; the latter had moulds and an inscribed seal, besides terracottas.

The objects from Hariharpur and Mahinagar comprised incised and stamped pottery and sherds of the Northern Black Polished and Rouletted Wares, besides terra-cotta lotus-moulds in Sunga style. The Northern Black Polished Ware was found at Betor also.

The above collections were variously made by Shri C. R. Roychoudhuri, Shri M. K. Pal, Shri P. C. Das Gupta, Shri B. Biswas, Shri M. Bose, Shri S. Mahapatra and Shri S. Khara.

The other acquisitions included stone and metal sculptures, paintings, manus-cripts, etc. The noteworthy among the stone sculptures were: a small seated image of Tara, *circa* seventh century, from the ruins of a Gupta temple at Karnasuvarna, District Murshidabad; an inscribed Sadasiva image, *circa* eleventh century, from Ban-garh, District West Dinajpur; a Jaina figure, *circa* tenth century, from Bankura; an image of Mayadevi, *circa* tenth century, from Gaya; and an inscribed lintel, showing Buddha flanked by the Bodhisattvas (pl. LXIX C), also from Gaya. Of the metal images, mention may be made of: a copper Virabhadra, *circa* eighteenth century, from south India; a charming pair of Krishna and Radha in bronze (pl. LXXXII A), *circa* fifteenth century, from Orissa; and gilt figures of Bhairava and Vajra-yogini (pl. LXXVIII E), *circa* sixteenth century, from Nepal. A terracotta plaque showing *rasa-mandala* (pl. LXXIX B), *circa* seventeenth century, was remarkable.

Paintings of the Rajasthani (Bikaner and Udaipur) School, a painted eighteenth century box (pl. LXXX A) from Udaipur, Mughul glasses and ivory, a Gujarati manuscript-cover in silver filigree-work (pl. LXXX B) from Surat, dated A.D. 1680, and an illuminated manuscript of the *Chandi (Devi-bhagavata)* dated A.D. 1683 (pl. LXXXI A), formed the other important additions to the collection.

The following coins were acquired: a gold coin of Kumargaputa II from Kharda, District 24-Parganas; a gold Ganga *fanam* from Panna; seven copper coins of Amsuvarman of Nepal; and a large number of copper cast coins from Harinarayanpur.

10. INDIAN MUSEUM CALCUTTA.—Twentyfour palaeoliths were collected from Chaibasa in District Singhbhum, on the banks of the two adjacent rivers, the Roro and Kunju. Similar tools, twentyfive in number, were also collected from Chakradharpur in the same District. A good number of potsherds, terracotta figurines, ornaments and agate beads were obtained from Harinarayanapur, District 24-Parganas (also p. 77).

The other acquisitions included a bronze image of Namasangiti Manjusri (*circa* thirteenth century), Nepalese temple-banners (*circa* sixteenth-seventeenth centuries) depicting scenes of Buddha's life and twentynine ivory beads with Arabic inscriptions.

Of the one hundred and seventysix coins that were acquired, over a hundred were copper cast coins and eight silver punch-marked coins from Harinarayanpur. The other notable additions included a silver coins of the Umayyed Caliph Hishar and a gold coin of Sher Shah, the former received as a present.

The re-organization of the Prehistory and Gandhara Galleries is in progress. Illustrative culture show-cases were designed for the prehistoric and protohistoric antiquities to make the display more interesting and readily intelligible to the visitor (pl. LXXXIII).

11. BHURI SINGH MUSEUM, CHAMBA.—The Museum acquired thirty-five objects, including a carved stone slab attributable to the tenth-twelfth centuries.

Attention is being paid to the proper display of the exhibits: twelve sculptures were provided with pedestals; bilingual labels in Hindi and English are being written for the exhibits.

12. CHANDRADHARI MUSEUM, DARBHANGA.—The Museum witnessed considerable progress in different directions. The noteworthy among the acquisitions were: sculptures of four-armed Vishnu and of Vishnu as Boar-incarnation (*circa* tenth century) from Tilkeswargarh, Monghyr District; an inscribed Buddha image (*circa* tenth century) from Kurkihar, Gaya District; Tibetan bronzes (pl. LXXXII B and C; and the Bhagirathpur inscription, dated in the year 394 of the Lakshmana-sena era (A.D. 1573), found near Pandoul, District Darbhanga, referring to the dynasty of king Harinarayana of Mithila. The other objects of interest were three Shah-nama paintings *(circa* eighteenth century), eleven palm-leaf manuscripts (pl. LXXXI B) from Mithila and two documents dated Saka 1533 and 1650 (A.D. 1631 and 1728), throwing light on slave-trade in Mithila, besides a few coins, one of them a gold issue of Narasimhagupta and ivory- and embroidery-work.

The Art and Sculpture Galleries were re-organized. The work of classifiying and accessioning the exhibits continued.

13. STATE MUSEUM, GAUHATI.—The acquisitions were: a stone slab with the figure of a devotee; a broken stone image of Vishnu; a stone head of lion; a terracotta image of Vishnu with the usual symbols; a few objects of metal; and twenty-seven fossilized stones of varying sizes. Two hundred and eightynine Ahom coins and twentyone pieces of gold, discovered at Joysagar, were acquired, and five Muslim coins were received as presents.

14. ARCHAEOLOGICAL MUSEUM, HAMPI.—Some copper coins and plaster-casts of sculptures, including one of the consort of Krishnadevaraya, were acquired.

15. CENTRAL MUSEUM, JAIPUR.—Fortyseven miniature paintings, ten textiles and costumes, a carpet and fortyeight coins, besides a few other objects, were acquired.

16. SARDAR MUSEUM, JODHPUR.—Twentyfour water-colour paintings, a manuscript and a textile were acquired.

17. ARCHAEOLOGICAL MUSEUM, KHAJURAHO.—A beautiful image of Uma-Mahesvara, from one of the western-group temples, was acquired for the Museum. The re-arrangement of the sculptures with suitable labels is in progress.

18. ARCHAEOLOGICAL MUSEUM, KONDAPUR.—The Museum-building is being extended to provide for the much-needed additional exhibition-space.

19. MUSEUM, KOTAH.—TWO manuscripts, one of the *Bihari-satasai* and the other *Vrinda-vinoda,* were acquired.

20. STATE MUSEUM, LUCKNOW.-The acquisition consisted of stone sculptures, terracottas, beads, pottery and bricks, mostly obtained from Mathura, Bawsa in District Etah, Ahichchhatra, Sankisa and Kausambi. The noteworthy of these were: two neolithic celts from Jamuna Jamasot, Allahabad District ; terracottas from Kausambi ; and a four-armed image of Avalokitesvara, with *aksha-mala, varada-mudra, amrita-ghata* and a full-blown lotus, belonging to the Magadha School and attributable to the ninth century. A large number of other objects, including bronzes, textiles, manuscripts, one of which was the *Maharnava* written by Visvesvara-bhatta in the fifteenth-sixteenth century, paintings, etc., were acquired through purchase.

Over thirteen hundred coins of different periods and dynasties were purchased for the coin-cabinet of the Museum. They comprised silver punch-marked, silver Indo-Bactrian and gold Kushan and Gupta coins, besides several others. A gold coin of Kamaragupta of the 'lion-trampler' type, where the king is dauntlessly facing a lion without arms, was a unique specimen.

Descriptive lables were re-written for a number of antiquities and a few wooden pedestals provided to sculptures in the galleries.

21. FORT ST. GEORGE MUSEUM, MADRAS.—A major portion of Clive's House has been taken over, and steps are being taken to make the halls suitable for the display of Museum-objects.

The General Section and the Portrait Gallery of the Museum are being re-organized. The preparation of built-in show-cases is in progress.

22. GOVERNMENT MUSEUM, MADRAS.—The additions to the Archaeological Section, through gift or collection, consisted of three pieces of ivory-work, nine paintings and four sculptures, including a group of Vishnu with Bhu-devi and Sri-devi. Further, twentyfive metal images and three metal utensils were received as treasure-trove finds.

A small collection of painted pottery from an urn-burial in Coimbatore Dis-trict and a large wide-mouthed burial-urn with some iron implements in a fragmentary condition were received as gift. The Numismatic Section acquired a lead coin of the Satavahanas of the second century, a hoard of two hundred and thirtyfive gold pagodas of the single-swam/ type issued by the English East India Company during the seven-teenth century and a copper coin issued by the Dutch for Ceylon in the eighteenth cen-tury. Six decorations of a courtier (Mandarin) of the Royal Court of Cambodia were among the other acquisitions.

23. MUSEUM, DEPARTMENT OF ARCHAEOLOGY, MYSORE.—Some of the typical antiquities discovered in the excavation at T. Narasipur (p. 33) were displayed in the Museum.

24. ARCHAEOLOGICAL MUSEUM, NALANDA.—The Museum-building is being extended to allow more exhibition-space. Five sculptures, including one of Heruka, were acquired from the neighbourhood of Nalanda.

25. NATIONAL MUSEUM, NEW DELHI.—The Museum was enriched by the acquisitions of important collections, which included: sculptures numbering about five hundred, of the Southern Schools like the Pallava, Chola and Vijayanagara; some early Rajasthani and Deccani paintings; Mughul ivories; an illustrated manuscript of the history of the Asafia dynasty, a manuscript of the *Qur'an* in Qufic script and an illustrated manuscript of the *Bhagavadgita;* and a valuable collection of Persian arms. Four thousand four hundred and seven coins of different Indian dynasties were added to the coin-cabinet. Other activities, such as the classification of the objects, preparation of introductory charts and labels, etc., and chemical preservation of the antiquities continued satisfactorily.

26. MUSEUM OF ANTIQUITIES, PADMANABHAPURAM.—The periodical cleaning and re-arrangement of the exhibits with fresh labels were carried out.

27. PATNA MUSEUM, PATNA.—Several important objects were acquired for the Archaeological Section of the Museum. Noteworthy among them were: a terracotta bowl of the Northern Black Polished Ware, found at Phulwari-sharif, Patna District; a standing bronze figure of Devi, with a mirror in her left hand, attributable to the twelfth century, from Chela, District Shahabad, obtained through the good offices of Shri S. V. Sohoni; and a collection of beads.

The additions to the coin-cabinet were nine gold coins, including one of the Narasimhagupta Baladitya, and fiftynine silver ones, comprising fortyfive punch-marked coins, two Gadhaiya coins and twelve Muslim coins.

28. MUSEUM, PRABHAS PATAN.—The acquisitions consisted of nine architectural pieces of the old Somnath temple, ten pieces of wooden carvings and an inscription from Prabhas Patan.

29. WATSON MUSEUM, RAJKOT.—A stone inscription of the Kshatrapa period was acquired for the Museum.

30. TIPU SULTAN MUSEUM, SRIRANGAPATNA.—At Srirangapatna a new museum is being organized in the Daria-Daulat-Bagh, the summer-palace of Tipu Sultan, to display objects pertaining to the times of Hyder Ali and Tipu Sultan.

31. ARCHAEOLOGICAL MUSEUM, SARNATH.—The re-organization of the Museum is in progress. The auditorium is being converted into the Varanasi Gallery for exhibiting antiquities from Varanasi and its neighbourhood.

32. MUSEUM, UDAIPUR.—A few post-Gupta sculptures from the Udaipur region were acquired.

33. BHARAT KALA BHAVAN, VARANASI.—The acquisitions included: nine sculptures; four bronzes; twenty seals; fiftyeight terracottas; four hundred and sixtyfive beads; and thirteen thousand three hundred and thirtyfive ancient coins from Kausambi, Bhita, Ahichchhatra and Rajghat (Varanasi), and coins of the Mughuls and Indian States.

VII. ARCHITECTURAL SURVEY OF TEMPLES

1. NORTHERN REGION.—The Temple-survey Project, Northern Region, under Shri Krishna Deya, completed a survey of the early temples, dating from *circa* A.D. 400 to 800, in Rajasthan, Uttar Pradesh, Bihar and central India. Only a few temples situated in the outlying regions of Saurashtra, Assam, West Bengal and Orissa remain to be covered to complete a survey of such temples of north India. In this connexion a comparative study was also made of the early northern-style temples of Alampur, situated on the Tungabhadra in Mahbubnagar District of Andhra Pradesh.

In addition, an extensive survey was undertaken of the early medieval temples of Rajasthan, including the Harshat-mata temple (pl. LXXXIV A) at Abaneri, Jaipur District, Harshanatha temple at Haras, Sikar District, Nilakantha temple at Paranagar, Alwar District, Kalika-mata and Kumbha-Syamaji temples at Chitorgarh, Mahavira temple at Ghanerav, Pali District, Sun temple at Varman, Sirohi District, ruined temple at Mandor, Jodhpur District, and the group of temples (pl. LXXXV) at Osia, Jodhpur District, and the Amba-mata temple (pl. LXXXIV B) at Jagat, group of temples (pl. LXXXVI) at Badoli, Lakulisa temple at Ekalingaji and Sas-bahu temples at Nagda —all in Udaipur District. The related group of temples at Roda, Sabarkantha District in Gujarat, was also surveyed. Most of these temples are affiliated to the wide-spread Pratihara style of architecture, which was fairly homogeneous in spite of the divergent local traits.

The important groups of the Paramara temples situated in central India at Un, District Nimar (West), Jamli and Badnawar, District Dhar, and Jhalrapatan, District Jhalawar, Rajasthan, were subjected to an intensive comparative study.

2. SOUTHERN REGION.—The Temple-survey Project, Southern Region, under Shri K. R. Srinivasan, continued the survey of the numerous cave-temples of the Muttaraiyars and the Pandyas in the Chola and Pandya countries and those belonging to the other minor contemporary dynasties in the outlying Districts (*1957-58,* p. 78). This work has to be done in great detail, because, beyond the well-known Pallava examples, very little is known of the nature, distribution and peculiarities of these cave-temples and because it has hitherto been customary to group them under Pallava, though they are located in far-flung areas which were never under the Pallavas.

More than thirty rock-excavations (cave and monolithic) were surveyed in the Pandya country, comprising the Districts of Madurai, Ramanathapuram, Tirunelveli and Kanyakumari, in addition to the Pandya cave-temples found side by side with Muttaraiyar ones in Tiruchirappalli District.

A detailed survey reveals that the Pandya cave-temples are contemporary with the later examples of the Pallavas, i.e., eighth century and after. In addition, they have some characteristic architectural details of their own (pl. LXXXV 11) as compared with the Pallava cave-temples. The most striking feature, however, is their iconographic content, (pl. LXXXIX A and B). Ganesa in his *valampuri* form is invariably associated with the Pandya cave-temples, while he is absent in the earlier Pallava cave-temples or monoliths. The *sapta-matrikas,* who were the particular favourites of the Chalukyas, are also very frequently found in association with the Pandya cave-temples. In the Pallava area they appear for the first time in the structural temple of Kailasanatha, Kanchi,

built by Rajasimha. The Subrahmanya forms are also popular. The six deities, viz., Ganapati, Kumara, Surya, Sakti, Siva and Vishnu, respectively of the Ganapatya, Kaumara, Saura, Sakta, Saiva and Vaishnava cults forming the *shan-mata,* whose worship is said to have been revived by Sankara, had become popular at this stage.

Three cave-temples at Anamalai, District South Arcot, Tirupparankunram, District Madurai, and Malayadikkurichi, District Tirunelveli, of this group are unique in having foundation-inscriptions helping in their precise dating. Of these three, the one at Malayadikkurichi was discovered during the survey. The three cave-temples will form the basis for the relative dating of other cave-temples not having such inscriptions, by a comparative study of the architectural and iconographic contents.

The only known Pandya monolith at Kalugumalai, District Tirunelveli (pl. LXXXVIII), though unfinished, is very interesting from the point of view of its architecture and very fine sculpture. It appears to mark a later stage than the two Pallava monoliths (the Dharmaraja- and Arjuna-*rathas*) at Mahabalipuram but seems to be slightly later than, if not coeval with, the Rashtrakuta monolith— the Kailasa temple at Ellora. It is a typical *dvitala-samachaturasra-Dravida-vimana* with an octagonal *sikhara.* It marks a very important stage in the development of the south-Indian *vimana* in that it shows, for the first time, the disposition of the various deities in definite places appropriate to them—a feature which forms the norm of the *vimanas* of subsequent periods.

Among the cave-temples of the contemporary minor dynasties, those at Namakkal (pl. LXXXIX C) deserve special mention, particularly the Ranganatha cave-temple, which has an important foundation-inscription stating that it was excavated by an Adigaiman ruler.

With the completion of the survey of a few more cave-temples of non-Pallava origin in Kerala State, a clearer picture about the classification and affinities of these different groups would emerge.

VIII. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Bombay

1. FORT, BALAPUR, DISTRICT AKOLA.—In continuation of the previous year's work *(1957-58,* p. 102), repairs were undertaken to underpin the hollows and pulverized portions of the brick fortification.

2. FORT, NARNALA, DISTRICT AKOLA.—The cracks in the roof of the Ambar-Mahal and cupolas of the Chhoti-Masjid were grouted with cement-mortar. The extant tops of the Ambar-Mahal arid Maha-Kali gateway were made watertight. Vegetation was removed from the fort-walls, and the pathways leading to the monuments were reconditioned by the spreading of *morum* and filling of ruts and pits.

3. FORT, GAWILGARH, DISTRICT AMRAOTI.—Rank vegetation was removed from over an extensive area from the exposed faces of the fort-wall. The paths inside the fort were reconditioned.

4. STONE CIRCLES, JUNAPANI, DISTRICT NAGPUR.—The group of megalithic monuments was cleared of rank vegetation and a protection-board fixed.

5. REMAINS OF BHONSLA NAGARKHANA, NAGPUR.—The damaged stone masonry in the north-east corner of this late-eighteenth century monument was repaired along with the removal of vegetation from its high walls.

6. REMAINS OF VISHNU SHRINE, RAMTEK, DISTRICT NAGPUR.—Repairs were done to the masonry wall at the back side of the shrine to arrest the collapse of the superstructure.

7. TEMPLE OF MAHADEVA AND TANK, LOHARA, DISTRICT YEOTMAL.—The stones in the steps of the tank which had been badly disturbed and in a threatening condition at places were re-set.

Madhya Pradesh

8. FORT, LANJI, DISTRICT BALAGHAT.—In continuation of the previous year's work *(1957-58,* p. 102), the exposed tops of the brick fortification, including bastions, were further made watertight and debris was removed from behind the temple. Scattered images within the fort were collected and arranged near the temple.

9. FORT, KHEDLA, DISTRICT BETUL.—Extensive jungle-clearance and re conditioning of the approach-roads were carried out at this long-neglected fort.

10. FORT, DEOGARH, DISTRICT CHHINDWARA.—In continuation of the previous year's work *(1957-58,* p.. 102), the floors of the Nagarkhana and Raj-gaddi were concreted and the exposed tops of the walls made watertight.

11. FLAT-ROOFED TEMPLE, KUNDALPUR, DISTRICT DAMOH.—TO stop the trespassing of cattle the area around the temple was fenced by barbed wire. Drains were provided for the flow-out of rain-water.

12. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—The stupendous work of removing the pulverized claystone from the roof-area of Caves 4 to 6 was continued (*1957-58,* p. 103) and the hard bed exposed on a considerable part of the surface over Caves 4 and 5. Clearance of the debris lying between Caves 3 and 4 was further continued and a few more sculptured fragments recovered.

13. BHOJA-SALA AND LAT-KI-MASJID, DHAR.—The broken and missing *chhajja*-stones of the colonnade around the courtyard were replaced and the extant tops made watertight.

14. GROUP OF MONUMENTS, MANDU, DISTRICT DHAR.—The exposed steps including the landings leading to Baz Bahadur's palace (*1957-58,* p. 103) were re-set in the badly-disturbed portions. The flanking wall on the road-side was exposed and its top made watertight. The arched openings carrying the aqueduct were also rendered watertight. The work of grouting the cracks and fissures progressed. The cupolas and terrace of the Jami'-Masjid was continued *(1957-58,* p. 103). As a phased programme of the removal of debris from collapsed and partly-buried monuments, the royal palaces behind the Champa-Baodi were taken up this year. The clearance exposed to view a courtyard with a cistern in the middle, which fitted in well with the Hamam-complex. The exposed parts of the structures are being made watertight. The debris along the sides of the Kapur-Talao was removed and a 12-ft. wide walk exposed between the tank and the enclosure-wall. Further work on this project is in progress. The terrace of the Nahar-Jharokha palace was made watertight and other minor repairs carried out. Approach-roads to the monuments were reconditioned. Rank vegetation was removed over an extensive area and the monuments kept presentable.

15. DELHI GATE, FORT, CHANDERI, DISTRICT GUNA.—The gate, bearing an inscription recording the budding of the fort in A.D. 1411 by the Sultans of Mandu, was repaired by the re-laying of concrete-terrace over the flanking bastions and the gateway proper.

16. MONASTERY AND TEMPLE, KADWAHA, DISTRICT GUNA.—The debris in the forecourt of this tenth-century Saiva monastery was removed and the retaining wall and compound-walls properly repaired to stop further collapse.

17. GROUP OF MONUMENTS, FORT, GWALIOR.-Cracks in the roof of the Sas-bahu temple were filled and expanded-metal casings provided against the inscribed slabs. The pitted floor of the courtyard of the Man-mandir palace was re-laid with concrete in patches. In the outhouses attached to the palace the work of replacing the cracked lintels (*1957-58,* p. 103) was continued. Minor repairs, like the filling of cracks here and there, were carried out at the Jaina colossi.

18. TOMB OF MUHAMMAD GHAUS, GWALIOR.-The missing *chhajja*-stones on the southern and western sides of the tomb were replaced by new ones. The leaky roof of the mosque attached to the monument was repaired by the laying of a

a fresh concrete. A turnstile gate was provided at the entrance to stop entry of the cattle into the garden.

19 ADAMGARH ROCK WITH PAINTINGS, KALAMARHI, DISTRICT HOSHANGABAD.-New pathways with kerbings were provided to the protected rock-shelters and the existing ones reconditioned by the spreading of *morum*

20 CHAUSATH-YOGINI AND GAURI-SANKAR TEMPLE, BHERAGHAT, DISTRICT JABALPUR.-The loose stone slabs, including the *chhajja*-stones of the cloister, were replaced and some of the images cleaned.

21 VISHNU-VARAHA TEMPLE AND TAPSI-MATH, BILHARI, DISTRICT JABALPUR-Trees growing over the top of the temple were removed and tree-killer applied Debris was removed from the first floor of the Tapsi-Math. The old and corroded expanded-metal door of the latter monument was replaced by a new one.

22 BRAHMANICAL ROCK-CUT TEMPLE, DHAMNAR DISTRICT MANDA-SOR-An important programme of repairs has been initiated for this long-neglected group of monuments. Boulders and pulverized portions of the fallen rock were re-moved from pathways and the drains improved for the easy flow of rain-water. The work is in progress.

23. YASODHARMAN'S PILLAR SONDHNI, DISTRICT MANDASOR.—The surroundings of the famous pillar were improved by the levelling and turfing of the area.

24 FORT ASIRGARH, DISTRICT NIMAR (EAST).-The pedestrian approach-road to the fort, lying through Malaigarh and Kamargarh gates, was improved by the rebuilding of the dislodged steps, landings and parapet-walls. The extant tops of the fort-walls were made watertight and the approaches to the monuments inside the fort, viz Jami'-Masjid and Mahadeva temple, were provided with brick kerbing.

25. BIBI-SAHIB'S MOSQUE, BURHANPUR, DISTRICT NlMAR (EAST)-The work of replacing the carved veneer-stones was continued (*1957-58,* p. 104). During the execution of the work it was observed that the previously-rebuilt portion of he *minar* was not bonded with the encasement-wall and thus showed signs of shatter-ing. It was therefore decided to remove the decayed base of the central pillar and re-place it by a reinforced-concrete one. The horizontal reinforcement-bars were to be further cast in concrete steps and anchored with the peripheral wall, thus obtaining a bonding which would distribute the weight of the superstructure uniformly. The leaky terrace of the prayer-hall of the mosque was re-laid with fresh concrete.

26. SHAH NAWAZ KHAN'S TOMB, BURHANPUR, DISTRICT NlMAR (EAST) -The leaky roof of the Naqarkhana opposite the tomb was re-laid with fresh concrete The dead lime-plaster on the exterior walls was raked out and a fresh layer applied In the corner-rooms of the tomb proper teakwood shutters with wire-netting were provided to stop bat-nuisance.

27 SHAH SHUJA'S TOMB, BURHANPUR, DISTRICT NIMAR (EAST).-To support a cracked lintel an iron joist was carefully inserted and the crack grouted. The pulverized portions of the plaster on the exterior were raked out and their ends filleted. The surroundings of the tomb were improved by the kerbing of the pathandspreading of *morum.*

28. CHAUBARA-DERA NO. 1, UN, DISTRICT NIMAR (WEST).—The dislodged and precariously-lying stones of the *sikhara* are being re-set.

29. MAHADEVA TEMPLE, BHOJPUR, DISTRICT RAISEN.—The modern structures on the plinth of the old temple were removed. The work of covering the open parts of the *sikhara* by stone slabs with rebated ends was continued *(1957-58,* pl. 104).

30. FORT, RAISEN.—Debris was removed from the bottom of the Moti tank. The steps leading to the water of both the Moti and Madaganja tanks were repaired. The terrace of the Kacheri building was re-laid with fresh concrete and the broken slabs of the ceiling replaced. To stop bat-nuisance expanded-metal fixtures were provided to the basement-chambers of the Enia Temple.

31. GROUP OF MONUMENTS, SANCHI, DISTRICT RAISEN.—The work of grouting at Stupa 1 was continued (*1957-58,* p. 104). The broken parts of the Asokan pillar were carefully placed under an improvised shed to save them from weather-action. The approach-road behind Monastery 51 was paved with flagstones for a further distance of about 15 ft. *Morum* was spread on the pathways leading to different monuments.

32. FORT, GARHPAHRA, DISTRICT SAGAR.—The steps and landings leading to the top of the fort were pointed with toned mortar. The cracks in the roofs of the *mahal* were grouted with lime-mortar mixed with cement. The large hollows and cavities in the walls were filled. The cracked stone lintels of the Shish-Mahal were replaced.

33. FORT, KHIMLASA, DISTRICT SAGAR.—The disturbed and missing flagstones of the Machhundri were restored. The fort-wall was made watertight over a length of nearly 100 yards.

34. FORT, RAHATGARH, DISTRICT SAGAR.—The cracked lintels of the Shahi-Mahal were replaced and the debris of its collapsed roof removed. The leaking roof of the mosque was made watertight by the laying of a fresh layer of concrete after the grouting of the cracks and fissures with cement-slurry.

35. OLD PALACES, ISLAMNAGAR, DISTRICT SEHORE.—The leaky roofs of the *baradari* and Shish-Mahal were repaired by the re-laying, in patches, of lime-concrete at places where the old concrete had become spongy and dead. The old plaster of the parapet-walls and other places was raked out and a fresh coat applied to avoid damage to the core-masonry. With a view to stopping the entry of cattle the compound-wall on the south was raised by 3 ft. and the debris lying along its foot removed to obtain further height. The decayed wooden beams of the *dalans* were replaced by new ones of proper sections. Minor repairs, including the replacement of broken glass panes, were done to the windows and doors of the *baradari* and the Zanana-Mahal.

36. HELIODOROS PILLAR, BESNAGAR, DISTRICT VIDISHA.—The remaining modern structures *(1957-58,* p. 105) and the pipe-railing around the pillar were removed. The protected area was fenced to stop encroachment and trespass.

37. BUDDHIST STUPA, GYARASPUR, DISTRICT VIDISHA.—A proper approach was provided from the main road to the *stupa,* which had been difficult of access. Rank vegetation growing on the platform, the steps and the drum of the *stupa* were removed.

38. BHIMGAJA PILLAR, PATHARI, DISTRICT VIDISHA.—TO avoid collapse of the sides a dry-rubble walling was raised on three sides to retain the earth-sections. The steps were improved and proper drainage provided for an easy discharge of rain water.

39. BIJAI-MANDAL MOSQUE, VIDISHA.—Clearance-work on the south side exposed the plinth of an earlier temple. In the prayer-hall of the mosque the un seemly rule-pointing was chiselled off.

Rajasthan

40. OLD TEMPLES NEAR THE CHANDRABHAGA, JHALRAPATAN, DISTRICT JHALAWAR.—The roof of the *sabha-mandapa* of the Sitalesvara temple was provided with a fresh lime-concrete. To stop stagnation of water affecting the foundation of the temple an adverse slope was provided by the filling of rammed *morum* combined with boulders all around the temple.

41. ROCK-CUT CAVES, KOLVI, DISTRICT JHALAWAR.—Silted earth in the caves was dug and fallen boulders removed from the passage in front of the caves.

42. TEMPLE, KANSWA, DISTRICT KOTAH.—The compound-wall of the temple was reconstructed to a proper height and provided with coping.

EASTERN CIRCLE

Assam

43. CACHARI RUINS, KHASPUR, DISTRICT CACHAR.—The original plaster, which had been exfoliating, was filleted and the joints filled in.

44. BARDOL TEMPLE, BISWANATH, DISTRICT DARRANG.—The fabric of the temple was strengthened by the clearance of weeds and plants, eradication of trees, restoration of the missing brickwork and renewing of the damaged plaster. The roof of the *mandapa* was partly redone in lime-concrete.

45. RUINS OF FORT, DlMAPUR, DISTRICT NAGA HILLS.—The gateway, badly damaged on account of the growth of trees, was thoroughly repaired. The roots of the trees were eradicated and the resultant damages made good. The cracks were grouted and overhanging brickwork underpinned. The spongy terracing over the roof was replaced by a new one. Arrangements were made to drain away rain-water from the gateway.

46. VlSHNUDOL TEMPLE, GAURISAGAR, DISTRICT SIBSAGAR.—Uprooting of trees, mending of the damages caused by them on the *sikhara* and renewing of the dead mortar in the joints of the brickwork were carried out.

47. GHANASYAM'S HOUSE, JOYSAGAR, DISTRICT SIBSAGAR.—The outhouse and the gateway attached to the main structure stood in a deplorable condition. Major repairs by way of the filling in of the cracks, underpinning of the hanging brickwork and rebuilding of the missing portions after the original were carried out.

48. GOLAGHAR RUINS, JOYSAGAR, DISTRICT SIBSAGAR.—Extraction of trees and repairs to consequent damages were effected, in addition to the clearance of

weeds, filleting of the edges of plaster, filling in of the open joints and dressing up of the compound.

49. KARENGHAR PALACE, JOYSAGAR, DISTRICT SIBSAGAR.—A considerable portion of the palace-complex, buried under earth, was exposed. In course of the clearance of debris around the monument, the staircase, walls and plinths of some subsidiary structures associated with the palace were unearthed. The exposed structures were thoroughly conserved by grouting, underpinning, making watertight and pointing. The damaged cornice of the main structure was made good after the original and the stucco secured by filleting. The cells in the lower storey were cleared of their debris. The surroundings of the palace were partly cleared of vegetation-growth.

50. RANCHAR PAVILION, JOYSAGAR, DISTRICT SIBSAGAR.—The protected area around the monument was cleared of jungle, levelled, dressed up and turfed. Trees growing on the top were uprooted and open joints filled in.

Orissa

51. BUDDHIST REMAINS, LALITAGIRI HILL, DISTRICT CUTTACK.—The construction of the building to house the sculptures (*1957-58,* p. 87) was almost completed.

52. BUDDHIST REMAINS, RATNAGIRI HILL, DISTRICT CUTTACK.—The Main Stupa, exposed in 1958, was made thoroughly watertight by the re-setting of two top courses of brickwork and placing of the dislocated bricks in position. The damaged mouldings on its facades were reproduced after the original with chiselled and rubbed old bricks. One of the smaller *stupas,* which had been reduced to its plinth, was restored to its original height by the re-setting of the stones lying scattered around it.

53. BUDDHIST REMAINS, UDAYAGIRI HILL, DISTRICT CUTTACK.—Repairs to the rock-cut stepped well by way of the re-setting of the dislocated stones of the parapet and pavement, eradication of deep-rooted trees from the masonry and filling in of the cracks were carried out.

54. GROUP OF TEMPLES, BHUBANESWAR, DISTRICT PURI.—Of the numerous temples standing in a dilapidated condition in the compound of the Lingaraja temple, twelve were thoroughly conserved by the re-setting of loose and dislocated stones in their original position, restoration of the missing and decayed stones by new ones after the original, filling in of the cracks and hollows and finishing of the exterior with recessed pointing. In a few cases the broad mouldings were reproduced without the details of ornamentation. The precincts of the Parasuramesvara temple were cleared of debris and dressed up. The premises of the Markandeyesvara temple were also cleared and a stone apron provided around the temple. The construction of a compound-wall is in progress.

55. CHAUSATH-YOGINI TEMPLE, HIRAPUR, DISTRICT PURL—The damaged and worn-out floor of the circular temple was restored by stonework in accordance with the original. The tops of the walls were secured by recessed pointing.

56. CAVES, KHANDAGIRI-UDAYAGIRI, DISTRICT PURI.—The missing pillar of Cave 5 (Jaya-vijaya-gumpha) of the Udayagiri was restored in suitably-coloured reinforced concrete after the original, Cave 9 (Satbakhra-gumpha) of the

Khandagiri was provided with expanded-metal doors for the protection of sculptures therein.

57. SUN TEMPLE, KONARAK, DISTRICT PURI.-One of the recommendations of the Konarak Temple Committee was to consolidate the body fabric of the temple and to make it a solid watertight mass by thorough grouting with liquid cement mixed with sand and ironite through holes drilled for the purpose. To begin with, the platform of the temple was taken up for this operation and the grouting of its south and west sides completed. The coping of the compound-wall on the east and south-west sides was reconstructed. The compound, after the clearance of the sand and stone blocks, was levelled and thoroughly dressed with a slope away from the monument. The pedestals of the gigantic elephants, which, following the clearance of sand all round, had been standing on loose earth, was supported by a stone pitching, with an angle of 45°, 10 ft. away from the base of the pedestals. A large number of sculptured stones and iron beams lying scattered both within and outside the compound-wall were collected and stacked behind the sculpture-shed for their eventual display in the proposed museum.

58. EXCAVATED SITE, SISUPALGARH, DISTRICT PURL—The open joints of the masonry of the gate were recess-pointed.

Tripura

59. GUNAVATI GROUP OF TEMPLES, UDAIPUR.—This group, consisting of three temples, is in tottering ruins. Only on account of their massive fabric are the structures still able to withstand the onslaught of the innumerable trees which have taken deep roots into them. In order to secure the stability of the structures a thorough and systematic programme of conservation has been chalked out. To begin with, the trees were uprooted and the premises around the temples levelled and dressed with a slope away from the temples. Besides, the reconstruction of the decorated corner-pilasters with *kalasas* on the tops, renewing of the damaged brickwork around the roof and the dome and partly on the wall, laying of concrete on the top of the dome and on the roof of the main temple and re-setting of the loose bricks of the pinnacle were carried out to the westernmost temple. Further, the missing and damaged parts of the three outer walls of the central temple were reconstructed. In the easternmost temple the completed items of repairs were the concreting of the roofs of the temple and porch, making of the top of the pinnacle watertight and repairs to the brickwork near the eaves.

West Bengal

60 GROUP OF MONUMENTS, VISHNUPUR, DISTRICT BANKURA.—Underpinning of the pillar-base and replastering of the pyramidal roof of the *rasa-mancha* were carried out. The southern compound-wall, which forms the rear of the *kirttana-sala* of the Lalji temple, was partially rebuilt. The consolidated debris accumulated outside its compound-wall was removed. The open joints in the laterite compound-wall and the gateway were recess-pointed.

61 RADHA-DAMODARA TEMPLE, SURI, DISTRICT BIRBHUM.-A 6-ft. wide concrete path was laid from the gateway to the entrance of the monument with brick-edging on either side.

62. TOMBS OF SHER AFGAN, QUTBU'D-DIN AND BEHRAM SAKKA, BURDWAN.—Re-plastering of some of the smaller tombs lying within the compound of the tomb of Behram Sakka, restoration of the damaged corner-pinnacle of Sher Afgan's tomb, concreting of the roof of the porch in front of Behram Sakka's tomb and laying of the concrete-floor of the platform outside the same tomb were carried out.

63. BRINDABANA-CHANDRA THAKUR'S MATH, GUPTIPARA, DISTRICT HOOGHLY.—The cracks on the roof of the Jorbangla temple were repaired after the weeding out of the shrubs and trees. The flooring of the platform of the gate was re-laid after the removal of the spongy old one and making good of the damaged brickwork. The walls and the roof of the gate were cleared of trees. The compound-wall also received attention by way of the uprooting of the trees after the dismantling of the brickwork and rebuilding of the same with old-sized bricks and reconstruction of the coping wherever damaged. The area around the temple was dressed up and a drain provided. Thus, the work which had been taken up in 1957-58 (*1957-58*, p. 89) was completed.

64. GROUP OF MONUMENTS, GAUR, DISTRICT MALDA.—The ornamental brickwork and mouldings on portions of the facades of the Lotton and Tentipara mosques were reproduced after the original. The western corner of the roof and the tops of the western wall of the Baraduari mosque were made watertight by the replacement of the disintegrated concrete. In order to safeguard against salt-action, the broken facade of the western wall was sprayed with lime-cement mortar. The decayed concrete-floor of the Dakhil-Darwaza was re-laid. The corrugated iron sheets forming the roof of the fifth storey of the Firoz-Minar was replaced by a reinforced-concrete roof. The decayed plaster on the inside wall of the Kadam-Rasul mosque was renewed. The open joints in the soffit of the arch were filled in. The area around the mosque was dressed up and water drained through the weep-holes in the compound-wall. The ground around the mosque and also the interior were properlyl evelled with an outward slope for the drainage of water. A large-scale earth-cutting was found necessary around the Chika mosque, as its interior was filled with water during the rains.

65. TOWER, NIMASARAI, DISTRICT MALDA.—Roots of trees were extracted after the dismantlement of the brickwork to a considerable depth and the damages made good.

66. GROUP OF MONUMENTS, PANDUA, DISTRICT MALDA.—The cracks in the interior of the dome of the Eklakhi mosque were filled in with suitably-tinted mortar. The modern masonry blocking the eastern gateway of the Qutb-Shahi mosque was removed. Stagnation of water around the monument was arrested by earth-cutting with a proper slope. The basement of the western and southern wall of the Adina mosque was repaired by the re-setting of loose and dislocated stones. Access to the mosque was provided through the eastern doorway and a pathway was laid connectiong the doorway to the prayer-chamber.

67. CHAR-BANGLA GROUP OF TEMPLES, BARANAGAR, DISTRICT MURSHIDABAD.—Repairs to the damaged steps on the western side with old-sized bricks, reproduction of the missing mouldings in plaster in the eastern temple and reconstruction of the brickwork in the foundation of the cistern at the back of the southern temple after the filling of the gap formed the main items of work. A 6-ft. wide pathway was provided along the outer periphery of the group of temples,

68. TOMBS IN THE DUTCH CEMETERY, KALIKAPUR, DISTRICT MUR-SHIDABAD.—Eradication of trees and repairs to the damaged brickwork of two tombs and re-plastering of four tombs after the removal of the spongy plaster were carried out. Provision was made for the drainage of water.

69. TOMB AND MOSQUE OF MURSHID QULI KHAN, KATRA, DISTRICT MURSHIDABAD—The restoration of the northern dome of the mosque, which had been taken up last year *(1957-58,* p. 89), was completed (pl. XC). The work of the reconstruction of the southern dome is now in progress. Two of the *katra*-cells were rebuilt after the original.

70. MOSQUE, KHERUL, DISTRICT MURSHIDABAD.—The leaking domes were repaired by terracing and plastering, wall-tops made watertight by the re-setting of two courses of bricks and cracks filled in with cement-mortar.

71. TOMB OF ALIVARDI AND SIRAJU'D-DAULA, KHOSHBAG, DISTRICT MURSHIDABAD -Extensive repairs to the compound-wall by way of the uprooting of vegetation, making good of the damaged and missing brickwork with old bricks, filling in of the voids and cracks and plastering of the top of the compound-wall in conformity with the original were carried out. The northern *gumti* was also attended to and the missing brickwork in the arch restored.

72. TOMB OF NAWAB SARFARAZ KHAN, LALBAG, DISTRICT MUR SHIDABAD.—Uprooting of trees from the top and side of the tomb, making good of the consequent damages, restoring of the damaged flooring of the tomb and dressing up of the compound were attended to.

73 TOMB OF AZIMU'N-NISA BEGUM, MOHIMAPUR, DISTRICT MURSHIDA-BAD.-Removal of the consolidated debris from the gate to the steps leading to the tomb, rebuilding of the parapet-mouldings of the compound-wall, restoration of the damaged brickwork of the doorway to the tomb, eradication of roots rendering of the underground chambers watertight, renewing of the damaged parapet of the interior wall and making good of an open gap in the western foundation with old slabs constituted the items of work.

74 MOSQUE AND TOMB OF SUJAU'D-DIN, ROSHNIBAG, DISTRICT MUR-SHIDABAD.-Restoration of the damaged terracing of the coping of the parapet, renewing of the parapet-moulding, making good of the missing and damaged brickwork repaving of the decayed courtyard-pavement and eradication of plants and repairs to the consequent damages were undertaken at the monument.

MID-EASTERN CIRCLE

Bihar

75 ASOKA COLUMN, RAMPURWA, DISTRICT CHAMPARAN.-Being situated in the *tarai* area, the area round the pillar remained covered with jungle for the greater period of the year. To avoid this, roots of the grass and plants were taken out and the jungle was thoroughly cleaned. The sides of the platform were defined and dressed.

76. EXCAVATED REMAINS, KUMRAHAR, DISTRICT PATNA.—The turfed area was improved and kept in a trim condition. A pumping-set was installed in the well for the better watering of the turfs and shrubberies. Loose barbed-wire fencing was tightened after the securing of a few iron posts which had fallen.

77. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA—The turfed areas were kept in a presentable condition. The area to the south of Site 3 was cleared and made ready for the extension of the turfed area. The undermined and salt-eaten bricks from the walls of Sites 5 to 8 were underpinned with chiselled and moulded bricks. Broken floors of Sites 4, 5 and 7 were repaired. The decayed tiled roof over the shrine of Site 14 was taken down and redone over new rafters.

78. GROUP OF MONUMENTS, RAJGIR, DISTRICT PATNA.—A portion of the eastern wing of the wall of the north gate of the Old Fort was traced and conserved and the height of the wall was increased by one course of stones. A portion of the wall of this gate on the western wing was also cleared and traced. A part of the wall of the New Fort was traced and conserved to a length of about 150 ft. The open joints of portions of the stone walls of the same fort were treated with recessed pointing. Leakages in the ceilings of the Son-bhandar caves were stopped.

79. BAKHTIYAR KHAN'S TOMB, CHAINPUR, DISTRICT SHAHABAD.—The decayed and spongy lime-concrete on the small domes on the first floor was taken down and replaced by new lime-concrete mixed with cement, toned down to match the adjoining surface, after the grouting of the cracks with neat cement-mortar. The broken floor of the verandah of the main tomb was also made good.

80. FORT AND GATEWAYS, ROHTAS, DISTRICT SHAHABAD.—Broken floors of some of the rooms of the Maid-servants' Quarters were repaired. The broken *pakka* pathway in the courtyard of the Shish-Mahal was treated with new lime-concrete. Minor repairs were undertaken to some other buildings in the fort.

81. SHER SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—The decayed floor of the verandah near the entrance of the tomb and the broken steps leading to the tank on both sides of the main entrance were repaired. The sloping sides along the causeway were suitably dressed and the turfs along the causeway and its sloping sides were kept green.

Uttar Pradesh

82. TOMB OF DAULAT OR ABHIMAN, MEHNAGAR, DISTRICT AZAMGARH.—The decayed and broken floor of the verandah on the ground-floor was repaired and a barbed-wire fencing with a turnstile gate provided. The top of the parapet on the first floor was made watertight.

83. GOMATI BRIDGE, JAUNPUR.-One of the *gumtis* of the bridge over the Gomati, which had been washed away by flood, was reconstructed (pl. XCI).

84. OLD FORT, JAUNPUR.-Breaches in the fort-walls were repaired.

85. IFTIKAR KHAN'S TOMB, CHUNAR, DISTRICT MIRZAPUR.-The breaches in the compound-wall were made good and open joints treated with recessed pointing at places.

86. EXCAVATED REMAINS, RAJGHAT, VARANASI.—A temporary shed was constructed over the newly-excavated trenches *(1957-58,* p. 50).

87. LAL KHAN'S TOMB, RAJGHAT, VARANASI.—A portion of the platform on the south and east was paved with flagstones.

88. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—Tops of the votive *stupas* in the Main Shrine and the courtyard thereof were made watertight. Undermined structures in the courtyard of the Main Shrine were underpinned. At the base of the Dhamekh Stupa the cavities were filled and stones changed where necessary up to a height of 5 ft. A large covered drain was provided to the west of the Main Shrine for better drainage. Turfs were properly maintained.

NORTHERN CIRCLE

Madhya Pradesh

89. GROUP OF TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—Recessed pointing, suitably toned, was done to the interior and exterior of the Varaha and the Matangesvara temples. The approach-roads were improved by a spread of *morum*. Other work included the construction of new approach-roads to the Chausath-yogini and the temples in the eastern and southern groups and inspection-paths around all the temples. The work of pointing on the Kandariya temple is in progress.

90. BIR SINGH'S PALACE, DATIA.—In continuation of last year's work (*1957-58*, p. 82) a series of nine domes were made watertight by grouting and pointing after the eradication of rank vegetation.

91. ASOKAN ROCK-EDICT, GUJARRA, DISTRICT DATIA.—The erection of a shed over this important rock-edict, started last year, was completed.

92. CHANDELLA TEMPLES, FORT, AJAIGARH, DISTRICT PANNA.—The work here consisted mainly of clearing the vast jungle around the monuments. Besides, a large number of sculptured stone fragments, found in the clearance, were stacked at one place.

93. GUPTA TEMPLE, BHUMARA, DISTRICT PANNA.—The area around the temple, which had remained full of dense jungle, was cleared, and a strip of land, 15 ft. wide, was freed of all rank vegetation all round the temple. All the scattered sculptures and architectural pieces are being sorted out and neatly stacked.

94. GUPTA TEMPLE, NACHNA-KUTHARA, DISTRICT PANNA.—The Parvati temple at Nachna-Kuthara, a text-book example of Gupta temple-architecture, was in need of urgent attention. In addition to extensive jungle-clearance, the plinth of the temple was exposed to the original ground-level. Some of the dislodged stones of the upper storey, threatening to fall, were re-set in position. In view of the importance of the monument and the fact that it had received little attention in the past, further work is called for, particularly the removal of modern additions to the *mandapa,* which give a false idea of the original plan.

Rajasthan

95. MONUMENT, BAY ANA, DISTRICT BHARATPUR.—The fallen parapet-wall of the main Usha-Mandir was rebuilt with old stones. New stone *jalis* were provided to the basement-chambers of Jhajhri.

96. PALACES, DEEG, DISTRICT BHARATPUR.—The dislodged *dasa*-stones of the causeway to the north of the Nand-Bhawan were re-set in lime-mortar.

97. CHAURASI-KHAMBA, KAMAN, DISTRICT BHARATPUR.—The collapsed and bulged portions of the wall on the south side were rebuilt. The area round the temple was suitably dressed and a proper slope given for the drainage of rain-water.

Uttar Pradesh

98. CHINI-KA-RAUZA, AGRA.—The main work at this monument, famous for its elaborate enamel-work, consisted of the treatment of the loose painted plaster on the intrados by the injection of plaster of Paris. The plaster-base of the enamel was also similarly attended to and the broken portions were neatly filleted.

99. FORT, AGRA.—The upper part of the fallen *guldasta* at the west corner of the Naubat-khana towards the north was re-set in position with a change of the broken stones. The dilapidated concrete-floor of the *dalan* on the first storey of the Machchhi-Bhawan at the north-east corner was paved with stone flags. A broken piece of the *kangura*-stone of the marble curtain-wall around the Golden Pavilion was restored and the copper finials over the two pavilions repaired. Underpinning and pointing were carried out in the courtyard of the Diwan-i-'Am. As some traces of paintings were visible on the intrados of the northeren archway of the Naubat-khana on the south, the coating of plaster was carefully removed and the original paintings, mostly geometrical patterns in deep green colour, exposed.

A *gardana*-stone and several *chhajja*-stones of the southern tower of the Moti-Masjid had fallen down due to the rusting of iron cramps. The restoration of the broken and the changing of the cracked and badly-exfoliated stones within the affected area are under execution. The iron cramps are being replaced by copper or gun-metal ones.

100. 'ITIMADU'D-DAULA'S, TOMB, AGRA.—The work of re-setting the loose inlay-pieces in the north-west and north-east corner-towers and repairs to the roof of the marble pavilion and the terrace were continued. The loosening inlay-pieces of the facade of the tomb were re-set.

101. KHAN-I-'ALAM, AGRA.—Large-scale underpinning and pointing were carried out to the old Mughul aqueduct inside the Khan-i-'Alam, originally carrying river-water to the Taj gardens. The damaged road was reconstructed with modern bricks strengthened with central and cross bands of *lakhauri* bricks.

102. RAM-BAGH, AGRA.—In this pleasure-garden or Arambagh, traditionally ascribed to Babur, dislodged stones of the pavement near the centre and southern plat-forms were re-set. Decayed patches of plaster were treated and the brickwork of the dilapidated drain reconstructed.

103. TAJ-MAHAL, AGRA.—TO find out the foundation-strata on the river side, a trial-pit, about 50 ft. long, had been previously dug *(1957-58,* p. 83) and two wells exposed. It appears that the structure had been raised on well-foundations with fillings of rubble-masonry in between (pl. XCII A). The centre-to-centre distance of the two wells was 11 1/2 ft.

On the open courtyard of the mosque and adjoining the north-west bastion, a wide joint in the stone pavement running west to east through the junctions of the stones and the cracks noticed underneath were thoroughly grouted with cement and hydraulic lime to a total length of 110 ft.

In pursuance of the recommendations of the Advisory Committee of 1943, suggesting repairs to the *minars,* the north-eastern *minar* was attended to this year. The following were the items of repairs: (1) re-setting of the dislodged stones of the dome and its pointing; (2) chiselling off of the fractured surfaces of marble and inserting *bidis* at those places; (3) re-setting of loose and restoring of missing inlay-pieces and bars; (4) re-setting of the dislodged stones of the marble railing and replacing the broken pieces, together with an ornamental bracket, by new ones; (5) provision of doors and replacing the decayed and exfoliated red stones of the interior; and (6) filling of joints, vertical and horizontal, faced with inlay-bars.

At the main gate, several broken *chhajja*-stones of the four corner *chhattris* were replaced (pl. XCII B). The broken concrete floors were re-laid, water-absorbent patches rendered watertight and the broken plaster of the parapet and inter-rooms made good. The dislodged stones of the drains running along the causeways, which were disturbed by roots of trees, were re-set and roots penetrating into the stones eradicated.

104. GROUP OF MONUMENTS, FATEHPUR SIKRI, DISTRICT AGRA.—The outer facing of the city-wall to the south of the Agra gate, which had collapsed during the rainy season, was repaired together with the embattled parapets to maintain the imposing view of the undulating wall-top. The Chor-Darwaza, a small gate in the city-wall towards west, which had similarly suffered, was repaired. In the *dargah* of Sheikh Salim Chishti the re-setting of loose inlay-pieces in the mosque and the restoring of missing inlay-pieces in the plinth of the tomb were continued, while the marble dome was repointed with suitably-stained special lime-mortar. In Turkish Sultana's House, the sunk stone pavement of the *dalan* was raised and its decayed stones replaced. Two broken brackets of the Girls' School and a few *chhajja*-stones of the guard-room attached to Mariam's House were restored. The dilapidated concrete floor of the *dalan* in the same area was paved with stone flags. The decayed concrete over the roof of the Doctor's House was re-laid with fresh lime-concrete, keeping due regard to its original level of the roof, as the old concrete had been laid indiscriminately.

105. MOSQUE AND GATEWAYS, JAJAU, DISTRICT AGRA.—The work here mainly consisted of providing new *chhajja*- and *gardana*-stones, wherever missing, in the pavilion over the north gateway. Simultaneously, fresh lime-concrete was laid on the floor of the pavilion and of the terrace to make them watertight.

106. HUMAYUN'S MOSQUE, KACHPURA, DISTRICT AGRA.—The central compartment of the monument was re-laid with fresh lime-concrete. Besides the underpinning of the brickwork and treatment of the decayed patches of plaster on the dome, the wide-open joints in the brickwork were filled.

107. AKBAR'S TOMB, SIKANDRA, DISTRICT AGRA.—Repairs to the longitudinal cracks in the centre of the arches round the mortuary-chamber were continued *(1957-58*, p. 41). The pavement of the southern side near the *dargah* was re-set in the

sunken portions. The decayed stones of the terrace of the first storey near the western gate were renewed. Decayed patches of plaster were treated. The loose inlay-pieces in the eastern face of the main gate were attended to. The open joints of the marble *chhattris* at the *dargah* were pointed with stained mortar. The spreading of *morum* over the inspection-paths has improved the setting of the monument.

108. GROUP OF MONUMENTS, KHUSRO-BAGH, ALLAHABAD.—The terraced roof towards the east of the ground floor of the tomb of Khusro's mother was reconcreted and cracks in the concrete floor of the platform of Khusro's tomb were repaired.

109. EXCAVATED REMAINS, MAHETH, DISTRICT BAHRAICH.—The remains at Maheth received attention. The two top courses of the walls of the Kachchi-kuti and Pakkikuti were re-set in concealed cement-mortar and sifted earth was spread over all the wall-tops at both the places. The inspection-paths were also attended to.

110. EXCAVATED REMAINS, RAMNAGAR, DISTRICT BAREILLY.—The damaged portions of the brickwork in Sites I, II and III were repaired and the two top courses were re-set in concealed lime-cement mortar to make the walls watertight.

111. TOMB OF NAWAB SHUJAA'T KHAN, JAHANABAD, DISTRICT BUNOR.—The mausoleum of Nawab Shujaa't Khan—a nobleman of the times of Aurangzeb—an elegant small structure picturesquely situated on the east bank of the river Ganga, was in a state of disrepair. Rank vegetation was removed, dislodged stones re-set, cracks grouted and open joints neatly pointed. The salt-affected stones will be attended to next year.

112. PATHARGARH FORT, NAJIBABAD, DISTRICT BIJNOR.—Special attention was paid to the west gate and the staircase leading to the rampart in the north. The roots of the big trees were removed after the dismantling of the masonry, which was afterwards reconstructed.

113. OLD MOSQUE, AKBARPUR, DISTRICT FAIZABAD.—The leakage on the roof of the mosque was stopped by the filling of cracks and the provision of a lime-concrete ledge. Patch-repairs to the plaster were carried out after the removal of rank vegetation.

114. GULAB-BARI, FAIZABAD.—The dislodged stones of the apron were re-set and pointed after the eradication of rank vegetation. The roof was rendered watertight by fresh concrete. The floor of the main hall of the Imambara in the Gulab-bari was re-laid in concrete. The decayed patches of plaster of the compound-wall on the south were attended to.

115. MAKHDUM JAHANIYA'S TOMB, KANAUJ, DISTRICT FARRUKHABAD.—The roof of the tomb was cleared of rank vegetation and made watertight by the grouting of the cracks and re-laying of fresh lime-concrete.

116. GUPTA TEMPLE, BHITARGAON, DISTRICT KANPUR.-This well-known brick temple received further attention *(1957-58,* p. 58). All the open joints of the facade were made watertight with stained mortar. The chemical treatment of the exquisite terracotta plaques will now be taken in hand.

117. BITA BRIDGE, LUCKNOW.-The water-spouts of the bridge were made good for the easy draining off of the water of the road. The string-course of the bridge and road-edge, which had given way to a length of 20 ft., were attended to by the filling

of the crevices with lime-concrete. Patch-repairs to the plaster of the main *minors* at the end of the bridge were also carried out and the compound-wall underpinned.

118. IMAMBARA OF ASAFU'D-DAULA, LUCKNOW.—The *baoli* attached to the monument was extensively repaired and the brickwork of the arches of the well underpinned. The deteriorated plaster at the back of the Imambara was attended to and the bulged steps leading to the terrace were re-set.

119. KAISAR-BAGH GATES, LUCKNOW.—The broken *chhajja*-stones were replaced and the decayed plaster attended to.

120. MASHIRZADI'S AND SA'ADAT 'ALI KHAN'S TOMBS, LUCKNOW.—The first floor of the eastern corridor of Mashirzadi's tomb was reconcreted, the wire-gauze "of the ventilators repaired and all the existing woodwork painted grey to match with the structures.

121. NADAN-MAHAL AND IBRAHIM CHISHTI'S TOMB, LUCKNOW.—The repairs mainly consisted of the pointing of the open joints of the stone floor and filling of wide and deep points. For keeping the precincts presentable, a brick compound-wall is under construction.

122. RESIDENCY BUILDINGS, LUCKNOW.—The repairs consisted mainly of extensive pointing, underpinning, edging and filling of cracks. The stone flooring of the verandahs of the Model Room, which houses a number of important historical paintings and other relics of the incidents of 1857, was completed.

123. RUMI-DARWAZA, LUCKNOW.—The broken cornices and the decayed moulded plaster were made good. The wide and deep cracks in the gate were filled in with fine cement-concrete. A few surface-cracks noticed on the arch were fitted with glass tell-tales to watch further movements, if any.

124. SIKANDAR-BAGH, LUCKNOW.—The decay of ornamental plaster was arrested by neat filleting and the brickwork underpinned.

125. SAI BRIDGE, RAI BARELI.—The water-absorbent patches at the water-spouts of the bridge were laid with fresh concrete for the easy flow of water, rank vegetation eradicated and crevices filled with concrete-mortar.

NORTH-WESTERN CIRCLE

Delhi

126. CITY-WALL, DELHI.—Some portions of the wall along Nicholson Road, which had collapsed after the rains in 1958, were rebuilt and the adjoining damaged cells repaired.

127. DADI-POTI'S TOMB, DELHI.—The decayed and porous concrete of the monument was dismantled and re-laid with fresh concrete. The approach-path to the monument was consolidated and spread with a layer of *morum*.

128. HAUZ-KHAS, DELHI.—The rubble masonry of the eastern boundary-wall, earlier repaired in mud mortar, was dismantled and rebuilt with lime-cement mortar. The open joints were also pointed. The damaged pathways were reconsolidated and dressed with a layer of *morum*.

129. JAMI'-MASJID, DELHI.—The dislodged plain and ornamental stones of the arches and pillars of the western basement, the interior and the northern face of the eastern flank of the southern gateways and the central dome were re-set and the broken stones replaced with new ones. The holes and cavities in the basement-wall and the eastern gateway were grouted and the open joints pointed to render the masonry watertight. The dislodged white marble stones of the small *burjis, minars* and the *muttakas* on top of the northern gateways, the north-eastern *minar* and the central dome were re-set and the open joints pointed with recessed mortar. The top concrete of the main mosque and the southern and eastern gateways, which had become porous, was dismantled, to be re-laid with lime-cement concrete.

130. KALI-MASJID, DELHI.—The decayed and fallen portions of the wall in the south and south-east corners of the Masjid were repaired and the open joints pointed.

131. LAL-KOT, DELHI.—The damaged walls of the Lal-Kot, where it is pierced by Delhi-Mehrauli and Mehrauli-Tughlakabad Roads, were rebuilt. The portion at the latter junction had been exposed last year (*1957-58*, p. 25).

132. QILA RAI-PITHORA, DELHI.—The inner retaining-wall of the rampart was repaired on either side of the Delhi-Mehrauli road.

133. QUTB, DELHI.—The decayed floors of the cells of the Mughul-Sarai to the north and south of the main entrance and the decayed roof concrete of one of the southern cells were dismantled and re-laid with fresh concrete. The damaged path ways were reconsolidated and finished with *morum.*

134. RED FORT, DELHI.—The underground cells of the Rang-Mahal, which had been flooded during the heavy rains of 1958, were cleared of silt and flood-water. Temporary low retaining-walls were constructed to prevent water from overflowing into the basement from the lawns. A portion of the marble floor to its north was dismantled and re-set. The broken and missing marble railing between the Diwan-i-Khas and Hamam was replaced. The decayed lime-concrete roof of the Diwan-i-'Am and the Khas-Mahal were dismantled; the work of re-laying fresh concrete is in progress. The restoration of the inlay-work in the Diwan-i-Khas is also continuing. The damaged pathways were reconsolidated and dressed with a layer of *morum.*

135. SULTAN GHARI, DELHI.—The approach-road to this tomb was widened by 2 ft. To make it possible for the surplus rain-water of the culvert to overflow without damaging the road, a low causeway was constructed to the east of the culvert.

136. TUGHLAKABAD FORT, DELHI.-The work of reconditioning some of the cells near the Khuni-Burj to provide shelter to the visitors was commenced and is still in progress.

137. ABDUR RAHIM KHAN-I-KHANAN'S TOMB, NEW DELHI.-The damaged pathways of the tomb were reconsolidated and finished with *morum.*

138. CHAUSATH-KHAMBA, NEW DELHI.-The damaged pathways were re consolidated and dressed with a layer *of morum.*

139. HUMAYUN's TOMB, NEW DELHI.-The breaches that had occurred in the rubble-masonry of the eastern and southern compound-wall owing to rains were closed with new work matching with the old construction. The damaged pathways were reconsolidated and dressed with a layer of *morum.*

140. 'ISA KHAN'S TOMB, NEW DELHI.—The broken and decayed rubble *kanguras* of the dwarf-wall around the tomb were restored and replastered as necessary.

141. KOTLA FIRUZ SHAH, NEW DELHI.-The broken rubble-masonry of the northern boundary-wall and the gateway, exposed last year, was reconstructed and the open joints pointed. The area between the eastern boundary-wall and the pyramidal edifice bearing the Asokan pillar was excavated down to its original level. The damaged pathways were reconsolidated and dressed with a layer of *morum*.

142. LAL-BANGLA, NEW DELHI.—Vegetation on the domes and walls of the Begam Jahan's and Lal Kunwar's tombs was rooted out and the open joints, holes and cavities grouted and pointed. The fallen *chhajjas* were re-set in their original position.

143. NAJAF KHAN'S TOMB, NEW DELHI.—The compound-wall of the tomb, lying buried under debris, was exposed (pl. XCIII). The rebuilding of and repairs to the decayed rubble-masonry of the wall to an approximate height of 3 ft. is now in progress.

144. PURANA QILA, NEW DELHI.—The broken rubble-masonry of the boundary-wall on the north-east and north-west was reconstructed. The holes and cavities were filled and open joints pointed.

145. SAFDARJANG'S TOMB, NEW DELHI.—The plain and moulded lime-plaster on the walls, pillars and ceiling of the *dalans* on the ground floor, which had decayed owing to encrustation of salt, is being repaired. The northern and southern *baradaris* were provided with stone pivots for doors and the openings closed with doors of Mughul pattern. The damaged pathways were reconsolidated and dressed with *morum.*

146. SIKANDAR LODI'S TOMB, NEW DELHI.—The damaged pathways of the tomb were reconsolidated and dressed with *morum.*

Punjab

147. FORT, BHATINDA.—The fallen brickwork of the lower retaining-wall, the southern enclosure-wall and the bastion of the inner eastern fortification-wall were reconstructed. Vegetation on the 60-ft. high walls was completely uprooted.

148. SURAJ-KUND, DISTRICT GURGAON.—A portion of the fallen dry-stone masonry of the *garhi* on the western embankment of the reservoir was reconstructed at places (pl. XC1V). The concrete terrace, which had sunk in patches following the heavy rains of 1958, was removed in slabs and refixed after the packing and ramming of the huge underground cavities.

149. TOMBS, NAKODAR, DISTRICT JULLUNDUR.—The dislodged pinnacle of the central dome of the Ustad's tomb and the missing pinnacles of the comer-*chhattris* of the Shagird's tomb were re-erected and open joints of the plinth of the latter pointed.

Rajasthan

150. ANASAGAR, BARADARI, AJMER.—The platforms of the marble pavilions were repaired.

151. BADSHAHI-MAHAL, PUSHKAR, DISTRICT AJMER.—Heaps of sand lying around the monument and partly concealing it were removed; the operations exposed a *pakka* platform with a flight of steps, built in ashlar-masonry.

152. BHATNER FORT, HANUMANGARH, DISTRICT GANGANAGAR.—The broken and decayed brickwork of the walls and bastions was repaired in lime-cement mortar and the worn-out concrete of the ramp replaced.

153. JAMI'-MASJID, AMBER, DISTRICT JAIPUR.—The minars of the mosque were repaired.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

154. FORT, GOOTY, DISTRICT ANANTAPUR.—The edges of the fallen portions of the fort-walls were secured by reconstruction with old stones. The disturbed cut-stone steps were re-set on a concrete-base.

155. MADHAVARAYASVAMI TEMPLE, GORANTLA, DISTRICT ANANTAPUR.—The flooring-stones of the Ujjvala-mandapa and the buldged-out portions of the exterior wall of the Devi temple and of the walls of the entrance *gopura* were re-set. The tops of the *gopura* and *mandapa* were made watertight by the filling of the voids with the stone chips in lime and provision of proper slopes to drain off rain-water. An old-style door was provided to the main entrance.

156. VIRABHADRASVAMI TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR.—Expanded-metal frames were fixed to the openings and windlets to stop bats from coming inside. The rubble-masonry was underpinned at places.

157. HILL-FORTS, RATNAGIRI AND MADAKASIRA, DISTRICT ANANTAPUR.—Vegetation was removed and open joints repointed with lime-cement mortar.

158. HILL-FORT, RAYADRUG, DISTRICT ANANTAPUR.—Vegetation was removed from the fort-walls and open joints in the floors of the temples pointed in lime-cement mortar.

159. RAJA- AND RANI-MAHALS, CHANDRAGIRI, DISTRICT CHITTOOR.—The work carried out here comprised: major repairs to the broken stone *chhajjas*, consisting of the removal of the broken rafters in cut stones and fixing new stone rafters in cement-mortar; filling of the hollow portions between the stone rafters of the ceilings with lime-concrete; removal of modern structures that had been built to convert the Mahal into a rest-house; and re-surfacing of the spoiled and damaged floors with concrete in combination-mortar with the top-surface rendered smooth to match with the old.

160. JAINA TEMPLES, DANAVALAPADU, DISTRICT CUDDAPAH.—The sand covering the plinths of the temples was removed and the plinths exposed to view.

161. PARASURAMA TEMPLE, POLI (ATHIRALA), DISTRICT CUDDAPAH.—The old concrete, earth, bricks, etc., were removed from the roof of the temple and fresh concrete with combination-mortar laid. The joints of the verandah-walls were pointed.

162. FORT AND GATEWAY, SIDDHAVATTAM, DISTRICT CUDDAPAH.—The underpinning of the salt-affected brick battlements with old bricks and similar underpinning to restore the arched openings on the inner side of the bastions were carried out. The wide cracks and openings of the facing-walls were filled in combination-mortar. The fallen portions of the facing-work of the corner-bastion on the south-east were rebuilt. Wide cracks in the gallery of the fort-wall were filled with concrete and hard stones in combination-mortar.

163. ROCK-CUT TEMPLE, UNDAVALLI, DISTRICT GUNTUR.—The main passage was stone-pitched and grouted. The uneven, damaged and pitted rock-cut floors of the caves were repaired with concrete to match the original. A part of the roof of the caves was made watertight by a fresh layer of concrete in lime-cement mortar.

164. FORT, GOLCONDA, DISTRICT HYDERABAD.—Removal of debris from the Rani-Mahal (pl. XCV) was continued (*1957-58*, p. 90) and the dwelling-halls and dark cells, etc., of the palaces exposed to view. The roofs of the inner palaces and the main entrance to the Rani-Mahal were made watertight by a fresh layer of concrete in combination-mortar after the grouting of the ceiling. The broken ends of the side-walls bearing the roof of the Rani-Mahal were underpinned and made watertight. Patch-work, such as pointing to the ceilings of the Bhagmati palace, replacement of missing stones and making of the roofs watertight, was attended to.

In the Nagina-bagh the fallen debris was cleared and black soil spread over the area to rear a lawn in the original style.

A concrete drain was cut on the roof of the Bala-Hisar for the draining away of rain-water. The plaster on the ceiling was redone in patches.

165. CHAR-MINAR, HYDERABAD.—The displaced stucco flowers (*guldastas)* of the parapet-wall of the mosque were refixed. Damaged portions of the plaster of the minars, mosque and basement were repaired in coarse combination-mortar. The entrance-doors were painted after the refixing of the shaky door-frames.

166. FORT, ADONI, DISTRICT KURNOOL.—The fallen debris of the dilapidated walls and roof of the third gateway, obstructing the passage, was removed and the passage cleared. The roof of the first was made watertight with concrete in combination-mortar after the removal of earth to get a proper slope. The faces and tops of the fallen parts of the same gateway and of the roof of the third and wall of the second gateways were grouted and pointed. The floors of the second and third gateways were levelled to stop the accumulation of rain-water.

167. EXCAVATED SITE, KONDAPUR, DISTRICT MEDAK.—Foot-paths were provided to the excavated remains in the area. Vegetation was cleared from the excavated area.

168. ERUGULAMMA TEMPLE, NELLORE.—The roof of the main temple was made watertight with shingle-concrete in combination-mortar after the removal of the old concrete, the shingle used in the work being similar to the original. Expanded-metal frames were provided to the ventilators to stop the entry of bats.

169. SOMESVARA TEMPLE, MUKHALINGAM, DISTRICT SRIKAKULAM.—The platform around the temple was provided with drainage-outlets and its top-surface provided with consolidated *morum*. Stone boundary-pillars are being provided around the land.

170. BUDDHIST REMAINS, SALIHUNDAM, DISTRICT SRIKAKULAM.—The remains, viz., the gate-house at the entrance, votive *stupas*, a Buddha-*chaitya,* three *stupa-chaityas,* the Main Stupa and a few *stupas* with special bricks in segmentary form, were made watertight by the re-laying of the disturbed top-courses in mud-cement mortar (pl. XCVI) and provision of *morum-coping.* Eroded patches in the stone-paved path-ways were filled with suitably-coloured cement-concrete.

The damaged plaster on the facing of the Main Stupa and other *chaityas* were partly filleted in fresh lime-cement mortar. A few more dilapidated stone *stupas* were re-arranged by the use of fallen stones. Approaches were repaired and guide-stones and direction notice-boards fixed. A few avenue-trees were planted and side- and cross-drainages provided with minor crossways in the approach-way.

171. BUDDHIST REMAINS, SANKARAM, DISTRICT VISAKHAPATNAM.—The brick structures, such as monasteries, small shrines and votive *stupas,* on the Bojjanna-konda hill around the rock-cut Main Stupa were made, watertight by brick-in-lime and their tops provided with *morum.* The site was cleared of rank vegetation and debris. The rock-cut votive *stupas* on the Lingalakonda were also conserved by the grouting of the crevices and cracks, with a finish matching the rock-surface.

172. THOUSAND-PILLARED TEMPLE, HANAMKNODA, DISTRICT WARANGAL. —New iron gates were provided in replacement of the old for the southern and eastern entrances of the compound-walls. The debris and stones in the eastern enclosure of the temple were removed and the ground levelled up and gravelled. The stone water-drain in the western side of the compound was desilted and cleaned. A garden with lawns is also being maintained.

173. RAMAPPA TEMPLE, PALAMPET, DISTRICT WARANGAL.—Some of the small pieces of pillars, roof-slabs, etc., lying on the platforms of the southern shrine were removed and stacked neatly in a corner of the compound-wall. Soot was removed from the carved pillars and sculptures in the main temple.

174. FORT, WARANGAL.—Maintenance of foot-paths and removal of vegeta-tion and cleaning of sculptures were attended to.

175. BUDDHIST REMAINS, GUNTUPALLE, DISTRICT WEST GODAVARI.—Removal of heavy jungle and grouting of the cracks and hollows in the brick structures were carried out. The pathways were paved with rubble stones blended with thin *morum.*

Madhya Pradesh

176. SAVARI TEMPLE, KHAROD, DISTRICT BILASPUR.—The leaky roof of the building was made watertight by a fresh layer of brick-jelly in lime. The *sikhara* was cleared of all vegetation and the exposed surface repointed.

177. PATALESVARA TEMPLE, MALHAR, DISTRICT BILASPUR.—The broken walls were made watertight. The steps and platform were repaired and the joints filled wherever necessary.

178. LAKSHMANA TEMPLE, SIRPUR, DISTRICT RAIPUR.—A reinforced cement-concrete *chhajja* was provided at the entrance to the temple in place of the lost stone ceiling-*cum-chhajja* (pl. XCVII). The temple-platform was re-set with flag-stones

and pointed and the top of the *sikhara* made watertight by cement- and lime-mortar after the grouting of all crevices and open joints.

Bombay

179. FORT-WALL, BALHARSHA, DISTRICT CHANDA.—The work carried out here comprised the excavation of the fallen debris of the bastions on either side and stacking of the stones at a distance, the making of the exposed tops of bastion watertight by grouted stone pitching 1 ft. thick and the repointing of the broken portions of the facing-work of the fort-walls, originally built in mud-and-stone in the core with stone-in-lime facing.

SOUTHERN CIRCLE

Kerala

180. FORT ST. ANGELO, CANNANORE.—The broken wooden planks of the bridge were replaced by new ones after tarring. The fallen portion of the rampart-wall was reconstructed.

181. BEKAL FORT, PALLIKER, DISTRICT CANNANORE.—A dwarf-wall was constructed in laterite stone in mud-mortar, with the use of the available old stones.

182. FORT, PALGHAT.—The heap of earth on the western side of the sub-jail was removed and the area levelled.

183. ST. FRANCIS CHURCH, COCHIN, DISTRICT TRICHUR.—The belfry at the top of the church, damaged by lightning, was reconstructed.

184. PALACES, MATTANCHERRI, DISTRICT TRICHUR.—The woodwork was treated with preservative. The inside and outside walls, where there were no traces of murals, were whitewashed. The pathways all round the palace were gravelled. A soak-pit and galvanized iron pipes were provided.

Madras

185. GROUP OF MONUMENTS, MAHABALIPURAM, DISTRICT CHINGLEPUT.—Stone benches and guide-stones were provided. The ground to the west of the Five Rathas was levelled and drains were constructed for the easy flow of rain-water. The pathways were gravelled for the convenience of vehicular traffic.

186. ROCK-CUT CAVE, SALUVANKUPPAM, DISTRICT CHINGLEPUT.—Walls were constructed wherever necessary to retain the pathways.

187. ROCK-CUT CAVE WITH INSCRIPTIONS, TIRUPPARAMUKUNDRAM, DISTRICT CHINGLEPUT.—A retaining-wall was constructed in rough stones all along the edge of the circular pathway in front of the monument to retain the newly filled-up earth and gravel. The top of the wall was plastered. The existing approach-stops were extended by additional steps.

188. SIVA TEMPLE, AVINASI, DISTRICT COIMBATORE.—The flooring between the *amman* and *svami* shrines were plastered in combination-mortar. The flooring on the west side of the main shrine was pointed. The modern brick wall in the *dalans* on the northern sides was removed and the floor of the *dalans* plastered. A door was provided in the *kalyana-mandapa* in the place of the old one. The front massive door in the front was painted.

189. MURUGANATHA TEMPLE, THIRUMURUGANPUNDI, DISTRICT COIMBATORE.—The terrace of the Subrahmanyan shrine was made watertight after the removal of the worn-out floor, and the eastern wall was reconstructed in ashlar-masonry in cement-mortar.

190. FORT ST. GEORGE, MADRAS.—Frosted glass and frames were fixed to the windows in Blocks 1 to 4, Old Officers' Mess. The walls were given grey and white washing. Old woodwork was painted with two coats of grey paint. The wooden staircase was also given two coats of French polish and the floor of the long hall wax-polished.

191. TOWN-WALL, TONDIARPET, MADRAS.—The old door-shutters were refixed and new doors, windows and sun-shades provided. The walls and flooring of the western bastion were plastered.

192. FORT, VELLORE, DISTRICT NORTH ARCOT.—The heaped earth on the old rampart was removed to give a good appearance. Cut-stone steps were constructed after the re-setting of the dislodged steps. The wall on either side of the fort-entrance was raised and a curtain-wall connecting the entrance and the cell constructed. A railing was provided over the wall. The brick rampart-wall was underpinned and plastered. The pathways were gravelled.

193. JALAKANTESVARA TEMPLE, VELLORE, DISTRICT NORTH ARCOT.—The pathways were gravelled. The old wood in the *gopuram* and the massive door were treated with preservative.

194. FORT AND BUILDINGS, ATTAR, DISTRICT SALEM.—The work consisted of gravelling in and around the Kalyana-Mahal, underpinning the brick wall south of the Kalyana-Mahal and plastering it in combination-mortar, levelling the ground and fixing an expanded-metal door and an expanded-metal partition in Granary 2, constructing steps in the rampart-wall opposite Granary 1 and repairing the bastion-wall.

195. FORT AND TEMPLE ON THE HILL, CHINNAKAVANDAPUR, DISTRICT SALEM.—The fallen fort-wall near the fifth gate was constructed in dry-stone masonry (pl. XCVIII), and a dry-stone revetment between the fourth and fifth gates was pro-vided.

196. RANGANATHASVAMI AND NARASIMHASVAMI TEMPLES ON THE HILL, NAMAKKAL, DISTRICT SALEM.—The old flooring in the temples was re-set with new cut-stone slabs and the joints pointed.

197. VENKATARAMANASVAMI TEMPLE, GINGEE, DISTRICT SOUTH ARCOT.—The terrace of the front *mandapa* in the temple was made watertight over certain areas.

198. ROMAN CATHOLIC CHURCH, PORTO NOVO, DISTRICT SOUTH ARCOT.—The brick retaining-wall in the front of the church was reconstructed. A general cleaning of jungle around the monument was done.

199. BRIHADISVARA TEMPLE, TANJORE.—The heaped-up earth in front of the temple was excavated and the ground levelled with proper slopes. The approach-road to the temple was metalled. The flooring of the platform was patch-plastered and pointed.

200. GROUP OF MONUMENTS, KUDUMIYAMALAI, DISTRICT TIRUCHIRAPPALLI.—A portion of the fallen compound-wall in front of the rock-cut Pallava inscription was rebuilt, following the old clues of construction and using the available old stones, in combination-mortar to match the old work.

201. MONUMENTS, KUNNANDARKOIL, DISTRICT TIRUCHIRAPPALLI.—The leaky portion of the terrace of the *mandapa* in front of the rock-cave temples was made watertight by the removal of the decayed lime-plaster and laying of brick-jelly concrete and two courses of flat tiles set in cement-mortar mixed with crude oil.

202. KORANGANATHA TEMPLE, SRINIVASANALLUR, DISTRICT TIRUCHIRAPPALLI.—The broken carved stone beam in the *mukha-mandapa* was replaced in conformity with the old one and the terrace over the ceiling-slab laid in brick-jelly.

203. GROUP OF MONUMENTS, TIRUMAYAM, DISTRICT TIRUCHIRAPPALLI.—The fallen rampart-wall on the top of the fort was reconstructed with the available old stones scattered around the fort and the top made watertight with brick-jelly in lime-concrete.

204. BHAKTAVATSALA TEMPLE, SERMADEVI, DISTRICT TIRUNELVELI.—The platform of the inner *prakara* was repaired by pointing in combination-mortar. The broken retaining-wall of the open *dalans* on the outer *prakara* was reconstructed with old stones. All the big granite stones, beams, etc., lying inside the temple were removed outside and stacked.

205. OLD SIVA TEMPLE, TIRUKALAMBUR, DISTRICT TIRUCHIRAPPALLI.—The platform in front of the temple was repaired by pointing in combination-mortar. The terrace and walls of the Dakshinamurti sub-shrine were repaired by patch-plastering. A new expanded-metal door-shelter was fixed for the same shrine. Gravel was spread along the compound-wall to prevent the growth of grass and to give a neat and tidy appearance.

Mysore

206. TIPU SULTAN'S PALACE, BANGALORE.—The flooring between the gate and the main road was paved with burnt granite.

207. OLD DUNGEON, FORT AND GATEWAYS, BANGALORE.—The modem partition-walls blocking the original doorways were removed and the entrance restored to their original appearance. Expanded metal in teak-wood frames with a door was fixed. An easement-wall was constructed in brick-in-lime with an outward slope on the top as in the existing type of parapet-wall all round. It was plastered with lime-mortar mixed with myrobalans *(Terminalia chelabala)* and jaggery-water. The decayed lime-mortar in the joints of the stones on the south and west side of the fort was removed, and the joints pointed with similarly-mixed lime-mortar.

208. GROUP OF MONUMENTS, HAMPI, DISTRICT BELLARY.-The area surrounding the Water Pavilion, Queen's Bath and Guards' Quarters were cleared of debris and vegetation. The pathways surrounding the monuments were gravelled.

209. ANANTASAYANAGUDI, HOSPET, DISTRICT BELLARY.—The entire area surrounding the monument was cleared of debris and brought to a uniform level with necessary slopes. The terrace was made watertight. The parapet-wall was plastered in patches as necessary. Expanded-metal frames were provided to the ventilators of the *vimana* and three entrances.

210. PATTABHIRAMA TEMPLE, KAMALAPURAM, DISTRICT BELLARY.—Removal of debris and earth from the south-west corner and corridors was completed. A 15-ft. wide pathway was provided around the monument. The uneven ground at other places was levelled and the entire area was given the necessary slopes to drain off rain-water. All the boulders lying inside were removed. The pathways surrounding the monument and the leading pathway were gravelled. The broken slabs at the entrance of the *garbha-griha* were removed and replaced by new ones. The modern masonry walls blocking the entrance were dismantled.

211. MALLIKARJUNASVAMI TEMPLE, KURUVATTI, DISTRICT BELLARY.—The old leaky terrace was dismantled and made watertight with two course of flat tiles with the necessary plastering over the top. Tell-tales were fixed at various places to observe further developments, if any, in the cracks. The crevices and the cracks were grouted.

212. VITTALA TEMPLE, VENKATAPURAM, DISTRICT BELLARY.—All the boulders adjacent to the main entrance and in front of the main temple were removed and the area levelled. The earthen mounds in front of the temple were cleared. The entire area in front and inside was levelled with necessary slopes for the free flow of water. The top of the terrace of the *mandapa* was made watertight.

213. VIRA-NARAYANA-PERUMAL TEMPLE, BELAVADI, DISTRICT CHIKMAGALUR.—The stone bench in the *navaranga* in front of the Vira-narayana shrine was re-set and the sides pointed in cement-mortar.

214. YUPA-STAMBHA AND ISVARA TEMPLE, HlREMAGALUR, DISTRICT CH1KMAGALUR.—The fallen compound-wall was reconstructed in brick and plastered. The earth all round the temple was removed in order to give a tidy appearance. The parapet-wall and floor of the *navaranga* were plastered. An expanded-metal door was provided to the entrance of the temple. The floor all round the *yupa-stambha* was recess-pointed.

215. GROUP OF MONUMENTS, SRAVANABELGOLA, DISTRICT HASSAN.—The terrace of the *mandapa* over the entrance of the Akkana-Basti was made watertight by the removal the old and dead concrete and laying of two courses of flat tiles in cement-mortar mixed with crude oil over brick jelly-concrete, finally plastered over with two coats of lime-mortar mixed with myrobalans and jaggery-water.

On account of the settlement of the flooring slabs in the Brahmadeva *mandapa* in front of the colossus, the pillars supporting the *chhajja-stones* all round the *man-dapa* had been out of plumb and the entire *mandapa* in a dilapidated condition. The pillars were pulled down and erected in position after the re-setting of the flooring-stones in level by the ruling up of the base below. The joints of the *chhajja-stones* were fixed with dowels as in the original. The square chamber in granite cut-stones below the *mandapa* was also cleaned by the removal of all debris inside it. During this opera-tion, six marble pieces of Jaina statues, two of them without heads, were found. A four-line inscription in Kannada was also exposed on the pillar.

The leaky terraces of the three temples on the top of the smaller hills were made watertight and the *vimana* of the Chamundiraya-Basti was made leak-proof by grouting.

216. RAMALINGESVARA TEMPLE, AVANI, DISTRICT KOLAR.—The fallen wall of the temple was rebuilt (pl. XCIX). The broken beam and corbel were replaced by new ones. The terrace was redone and the flooring re-set.

217. KOLARAMMA TEMPLE, KOLAR.—The stone flooring on the eastern and northern sides was completed.

218. BHOGANANDISVARA TEMPLE, NANDI, DISTRICT KOLAR.—The brick wall of the Kalyani tank was underpinned and the water-spouts over the terrace of the *navaranga* of the Bhoganandisvara and Arunachalesvara shrines repaired.

219. RAMESVARA TEMPLE, NARASAMANGALA, DISTRICT MYSORE.—The accumulated earth all round the main temple was removed and the ground sectioned to proper slopes for quick drainage (pl. C). During the operation, the foundations of five old temples around the main temple were exposed.

220. KESAVA TEMPLE, SOMANATHAPUR, DISTRICT MYSORE.—The flooring all round the *prakara* was laid in cut-stone slabs and the joints pointed with cement-mortar over a bed of brick-jelly concrete in lime-mortar. All the old flagstones available at the site were cut to size and laid in the corridor all round the *prakara* over a bed of sand and pointed with cement-mortar. The entire terrace of the corridor all round was made watertight by the removal of the old concrete and laying of brick-jelly concrete. Two coats of flat tiles were laid in cement-mortar and plastered in lime-mortar mixed with myrobalans and jaggery-water and the top-surface left rough. The exterior of the temple was levelled by the spread of the debris available from the dismantled terracing-material. A teak-wood frame in welded mesh was provided to the huge inscribed slab fixed in the front *mandapas.* All the old dislodged cut-stone steps leading to the corridor from the *prakara* were removed and re-set in position. Cut-stone water-spouts were also fixed over the terrace for drainage.

221. TEMPLE AND INSCRIPTIONS, UDRI, DISTRICT SHIMOGA.-Granite steps were provided to the Siva temple from the roadside. The loose sculptures and inscribed stones were fixed on a platform. The parapet-wall of the Lakshmi-Narayana temple was replastered.

222. SULTAN'S BATTERY, BOLURU, DISTRICT SOUTH KANARA.-Granite benches were fixed at the top of the battery. The walls all round were recess-pointed in cement-mortar. The pathway around the battery was gravelled.

SOUTH-WESTERN CIRCLE

Bombay

223. MAHADEVA TEMPLE, KOKAMTHAN, DISTRICT AHMADNAGAR.-The leaky roof of the temple was made watertight after the removal of rank vegetation.

224. TRIPLE-SHRINED TEMPLE, TAHAKARI, DISTRICT AHMADNAGAR.-The roof of the temple was made watertight after the raking out of the old and decayed mortar.

225. MONUMENTS, TOKA, DISTRICT AHMADNAGAR.—The damaged floors of the monuments were repaired with cement-concrete and finished to match the original surfaces. Cracks and crevices appearing on the walls were filled and open joints on the walls pointed.

226. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—Conservation to Caves 21 to 29 was kept in progress (*1957-58,* p. 96). Drip-courses were provided to all these caves. A portion of the roof of the side-chamber attached to Cave 26, which had been in a dangerous condition, was secured by the insertion from below of a reinforced cement-concrete beam embedded in the rock. In Cave 18 the repairs in ashlar-masonry done in the past were redone in reinforced cement-concrete to match the rock-surface. The yawning gap, together with the other fissures in the ceiling, was rilled and the separated portion of the roof anchored to the mass of rock behind. The side-wall, carrying on its other side the dedicatory inscription of Cave 17 and images of Buddha, was repaired (pl. CI). The huge underground cistern recently located between Caves 17 and 18 was cleared of all silt; this will help in the storing of water for use during the summer.

Fine repairs to the sculptures were kept in progress. Damaged portions of the sculptures on the facade of Cave 26 were repaired.

227. BIBI-KA-MAQBARA, AURANGABAD.—Exposed portions of the facade of the entrance-gate were partly plastered with the same fine material as in the monument proper and the ornamental designs reproduced in the plaster wherever necessary. The work is in progress.

228. ROCK-CUT CAVES, AURANGABAD.—Drains were cut into the rock on the top of Caves 1 to 5 to divert rain-water from coming down the facade. The hollows on the surface of the rock, where water used to collect, were filled. The approach-road in front of Cave 5 was widened by the removal of debris and partial cutting of the soft rock. To check erosion of the edges of the pathway a retaining-wall was erected.

229. FORT, DAULATABAD, DISTRICT AURANGABAD.—Besides the usual clearance of debris and jungle, a portion of fortification-wall, fallen in the past, was reconstructed at places matching the existing portions. The roof of the cave at the top, associated with the saint Janardanasvami, was repaired and, in order to stop water from coming into the cave, a drain was constructed by cutting the rock in front of it. A door with expanded-metal shutters was provided to the cave-entrance. The unfinished excavations on the top, now used as cisterns, were cleared of all debris and silt.

230. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—The work taken in hand last year (*1957-58,* p. 97) was kept in progress. The cutting of surface-drains into the rock over the caves for the prevention of rain-water from flowing over the facade of the caves and of throating to check water from getting inside Caves 1 to 9 was completed. Two pillars in the passage between Caves 6 and 9, constructed in ashlar-masonry in the past, were replaced by cement-concrete pillars fashioned after the extant example. A masonry-pillar, supporting the cracked roof of the side-cell in Cave 3 but obstructing the view of the sculptures carved on the walls, was removed, and a reinforced cement-concrete beam, duly embedded in the rock to take the load of the ceiling, was inserted below the ceiling.

In Cave 16 (Kailasa), the door-jambs of the main entrance to the *gopura* were repaired in concrete after the removal of the ashlar-masonry repairs. Similarly, the plinth-walls were repaired in concrete chiselled to bring out a rocky effect. In addition,

a few pillars were repaired and the cracks in the ceiling of the passage connecting the *nandi-mandapa* and *gopura* filled. During the work it was found that the level of the ground in front of the cave had considerably risen, with the result that a part of the facade was hidden from view. By excavation the original floor-level was exposed and a band of sculptures of fighting animals on the curtain-wall flanking the *gopura*, fronted by an expansive rock-floor with a dwarf-wall at the outer edge, was brought to light. As a result of the lowering of the ground-level, the drains from the inner court of the temple had to be re-oriented and reconstructed. In the course of excavation a number of fragmentary of sculptures and architectural members were recovered.

A Jaina excavation near Cave 30, hitherto inaccessible and hidden behind debris, was cleared. A few fragments of sculptures were unearthed during the clearance.

Side by side, fine repairs to the sculptures were kept in progress. The wide seams across the elephant-caryatids on the eastern side of the plinth of the main shrine of Cave 16 were filled.

231. ROCK-CUT CAVES, PITALKHORA, DISTRICT AURANGABAD.—Further clearance in front of Cave 4 (*1957-58*, p. 97) revealed two more elephant-caryatids, thus bringing their number to nine, at the end of which was the sculpture of a horse. On the return-wall was the mutilated image of a goddess sitting on a low seat. The attendant on the right side was also mutilated.

232. GROUP OF TEMPLES, BALSANA, DISTRICT EAST KHANDESH.-The temples were freed of rank vegetation and cleared of debris and fallen members of the structures. The missing portions of the walls were repaired with the available material and their tops made watertight. The roof was repaired by cement-concrete wherever necessary and the exposed joints on the walls pointed.

233. NAGARJUNA CAVES, PATAN, DISTRICT EAST KHANDESH.-For an easy access to the caves a series of masonry-steps was constructed. A few more steps are necessary to cover the full ascent.

234. TOMBS, THALNER, DISTRICT EAST KHANDESH.—After the removal of rank vegetation from the monuments, the open surfaces of walls were plastered in accordance with the original surface and the tops made watertight by pointing. The damaged floors were consolidated and concreted. The structures on the graves were also repaired.

235. CAVES, ANKAI, DISTRICT NASIK.—The group of caves was treated by way of the dismantlement of the ashlar-masonry pillars erected in the past and construction of cement-concrete pillars, steps, etc., all tinted and chiselled to match the rock-surface. The cracks appearing in the ceiling were sealed.

236. HEMADPANTHI TEMPLE, DEOTHAN, DISTRICT NASIK.—The roof of the temple was made watertight after the raking out of the old and decayed mortar.

237. ROCK-CUT CAVES, BHAJA, DISTRICT POONA.—The imposing but overhanging female figure with an inscription on the left side of the facade was given a proper support by the reconstruction of the missing portion of the side-wall between the *chaitya*-hall and the adjoining *vihara* in cement-concrete to match the existing sur face. The floor of the *chaitya*-hall was repaired.

238. ROCK-CUT CAVES, KARLA, DISTRICT POONA.-The repairs done in the past with ashlar-masonry were removed and replaced by tinted concrete chiselled to match the surroundings. The old nullah in the compound, which drains out rain-

water, was properly constructed in masonry and the top bridged with reinforced cement-concrete slabs. The cracks appearing on the surface of the pillar carrying the lion-capital in front of the *chaitya*-cave were grouted and sealed. The repairs are in progress.

239. PATALESVARA CAVES, POONA.—The broken portions of the pillars and disintegrated portions of the floors and walls were repaired with cement-concrete duly tinted and chiselled to match the rock-surface.

240. SHANWARWADA, POONA.—Besides the maintenance of the garden in the precincts of the monument, the ruins were attended to by way of the making of the tops of walls watertight, pointing of the walls and strengthening of the foundations of walls.

241. SINDHUDURG FORT, MALWAN, DISTRICT RATNAGIRI.—The work of making the roof and tops of walls on both the sides of the entrance-gate watertight and pointing the walls was taken in hand.

242. ROCK-CUT CAVES, KANHERI, DISTRICT THANA.—The caves have been taken up for repairs on the lines being followed at Ajanta and Ellora. The missing pillars and decayed portions of the walls of Cave 53 were repaired with reinforced cement-concrete and chiselled to match the surrounding rock-surface. The conservation of the remaining caves is in progress.

243. STEPPED WELL, TAVALI, DISTRICT WEST KHANDESH.—The wide cracks in the domes were filled and the exposed portions plastered according to the original.

Mysore

244. FORT, BIDAR.—The gateways and bastions were freed o rank vegetation and the debris accumulated inside cleared. The battlements were repaired, the damaged floors concreted and the open joints pointed. The domes and the tops of the turrets were made watertight.

245. MADRASA MUHAMMAD GAWAN, BIDAR.-The rooms on the ground floor of the Madrasa, which had been without any floor, were provided with flooring to stop seepage of water into the foundations of the walls. The damaged walls were repaired and strengthened. The missing portion of the dome on the first floor of the southern wing was reconstructed so to match its extant body. The missing portions of the terrace were repaired with reinforced cement-concrete with a concrete layer at the top to match the original surface.

246. TOMB OF AMIR BARID, BIDAR.—After the removal the of debris and vegetation from the top, the roof was made thoroughly watertight. The damaged flooring was concreted and plastered. The exposed joints of the masonry were pointed.

247. GROUP OF TEMPLES, AIHOLE, DISTRICT BIJAPUR.—A number of temples were attended to mainly by way of the making of the *sikharas* and roofs of *mandapas* watertight, replacement of missing roof-slabs, pointing of the exposed joints in the masonry, repairs to the damaged flooring and provision of shutters to doors and windows with expanded-metal frames, etc.

248. FORT, BADAMI, DISTRICT BIJAPUR.—The temple known as the Upper Sivalaya in the fort was repaired by the making of the roof watertight, replacement of the moulded stones in the plinth, construction of steps, etc. The ruins called the Treasury of Tipu Sultan were cleared of all debris and rank vegetation.

249. GROUP OF MONUMENTS, BUAPUR.—To stop rain-water from entering into the courtyard of the Ibrahim-Rauza and percolating into its foundation, several measures were taken. The boundary-wall was reconstructed in cement-mortar with a ramp sloping outside, and all the walls were pointed and made watertight down to a depth of 3 ft. from the surface. The pavement-stones leading from the *dalans* to the Rauza were re-set. The joints between the stones of the platform were raked out and pointed after being grouted to stop percolation of water into the vaults below. Dead and decayed mortar in the masonry of the vaults was similarly raked out and pointed. Besides, steps are being taken to drain out water from the courtyard as well as that coming from the surrounding fields. The work is in progress.

The main dome of the Juma-Masjid was cleared of all moss and lichen and its exposed portions plastered and suitably finished. The damaged patches of the floor were concreted and the exposed joints of the masonry pointed. Further repairs are in progress.

The Gol Gumbaz received attention by way of the concreting of the damaged portions of floors, plastering of walls after the raking out of the old spongy plaster and edging of patches of plaster. The salt-affected thick plaster below the interior haunches is being raked out to make room for fresh plaster, to be applied after a thorough washing.

Repairs to the other monuments mostly consisted of the making of the tops of walls watertight, plastering of the exposed surfaces, edging of patches of plaster and concreting of the floors.

250. GROUP OF TEMPLES, PATTADKAL, DISTRICT BUAPUR.—The items of repairs carried out to the temples consisted of the pointing of the wide joints of the masonry, making of the *sikharas* and roofs watertight and fixing of shutters to the doors and windows with expanded-metal frames, etc. Particular attention was paid to the Papanatha temple: the wide and open joints in the masonry were filled with recessed pointing and the masonry consolidated.

251. NAGESVARA TEMPLE, BANKAPUR, DISTRICT DHARWAR.-The temple being situated at a level lower than the surrounding land, the sides of the earth got damaged every year. To check such damages and to lend a neat appearance to the surroundings, masonry walls were erected all round the temple.

252. MUKTESVARA TEMPLE, CHAVDANPUR, DISTRICT DHARWAR.-The outer faces of the walls of the *mandapa* in front of the temple, formerly repaired in rubble-masonry, are being repaired properly in ashlar-masonry. The work is in progress.

253. MONUMENTS, HANGAL, DISTRICT DHARWAR.-To protect the foundations of the Tarakesvara and Virabhadra temples from being waterlogged, a 3-ft. wide strip of land was concreted around the temples.

254. MONUMENTS, LAKKUNDI, DISTRICT DHARWAR.-The roof of the Manikesvara temple was made watertight by cement-concrete over a layer of rubble-filling laid after the removal of the accumulated earth.

255. CHANDRAMAULISVARA TEMPLE, UNKAL, DISTRICT DHARWAR.—The porch of the temple was repaired in masonry and the flooring concreted.

WESTERN CIRCLE

Bombay

256. BABA LAULI'S MOSQUE, AHMADABAD.—The mosque, which had been previously protected from flood by the construction of a protective wall, was further strengthened by a filling of earth between the mosque proper and the wall, the top of the filling made watertight by rubble pitching.

257. KHAN TANK, DHOLKA, DISTRICT AHMADABAD.—The tilted parapet-wall on the south was dismantled and rebuilt, and the ashlar-masonry of the sides of the eastern ramp was repaired. A modern construction at the south-east was removed.

258. MALAVTANK, DHOLKA, DISTRICT AHMADABAD.—The dislodged stones in the eastern and northern ramps were re-set in position and the missing ones replaced. The fallen and tilted walls were rebuilt in ashlar-masonry. The loose coping-stones lying in the vicinity of the inlet-channel were fixed to the southern parapet-wall of the channel. A few dislodged stone steps near eastern ramp and the 'place of justice' were removed and re-set on a cushion of lime-cement concrete.

259. MANSAR TANK, VIRAMGAM, DISTRICT AHMADABAD.—The bulged and tilted parapet-wall to the south of the inlet on the west was dismantled and reconstructed in ashlar-masonry, largely by utilizing old stones. The fallen parapet-wall of the inlet-channel was repaired in ashlar-masonry.

260. RUKMINI TEMPLE, DWARAKA, DISTRICT AMRELI.—The dome and porch-roof of the *sabha-mandapa* and the *sikhara* had been leaking heavily; the carved stones of the outer core had been weathered and some of them dislodged from their positions. The dome and porch-roof were rendered watertight with lime-cement mortar. The hollows in the plinth and the part of *garbha-griha* were grouted with lime-cement mortar. The work is in progress.

261. JUNAGADHI-MATA TEMPLE, GADHI, VASAI, DISTRICT AMRELI.—The monument had been in a dilapidated condition, with some of the lintels, capitals and roof-slabs cracked or weathered and an uneven flooring causing stagnation of rain-, water and growth of vegetation. The flooring was redone with new stones on a cushion of cement-concrete matching the original (pl. CII). The work is in progress.

262. HAZIRA, DANTESWAR, BARODA.—A separate approach to the tomb was provided and the area between the Police Ground and the tomb separated by a barbed-wire fencing, which will facilitate the laying out of a garden around the tomb.

263. HIRA GATE, DABHOI, DISTRICT BARODA.—In the 37-ft. high ornate Hira gate on the east face, the tilted and fallen flanking-wall to the south of its annexe, the Barhanpuri gate, was rebuilt, after dismantling, in ashlar-masonry to a length of 96 ft. and its top rendered watertight.

264. NANDODI GATE, DABHOI, DISTRICT BARODA.—The fallen and tilted eastern flanking-wall of the Nandodi gate, the southern entrance at Dabhoi, was

repaired in ashlar-masonry. The flight of steps leading to the top-floor was repaired and the top of the flanking wall made watertight.

265. TALAJA CAVES, TALAJA, DISTRICT GOHELWAR.-The group of thirty-eight caves had no proper paths leading from cave to cave. To provide such paths, steps were cut out of the rock at places and the existing paths were widened elsewhere to 4 ft. by cutting the rock. A retaining-wall was provided at two places as a safe-guard against erosion. The work is in progress.

266. JAMI'-MASJID, CAMBAY, DISTRICT KAIRA.—The dislodged stones of the huge courtyard of the mosque were dismantled and re-set in their original positions on a cushion of cement-concrete to the extent of about 1200 sq. ft. The de-cayed panels of some of the perforated windows were replaced. A few exfoliated pillars were replaced by new ones of the same design.

267. SIVA TEMPLE, BAVKA, DISTRICT PANCHMAHALS.—The temple had been in a completely dilapidated condition. The tilted and dislodged carved stones of the western wall of the *garbha-griha* and the tilted door-jambs were repaired and re set in their original positions in lime-cement mortar. The outer core of the western wall was built up to support the roof (pl. CIII). The work at the *garbha-griha (1957-58,* p. 100) is now complete.

268. CITADEL-WALL, CHAMPANER, DISTRICT PANCHMAHALS.—The jungle-covered and at places tilted and bulged fort-wall to the east of the Halol gate, the south entrance, was cleared of all vegetation and debris, rebuilt to a length of about 60 ft. and made watertight. In the same way, the flanking wall to the north of the Godhra gate, the eastern entrance, was repaired in ashlar-masonry after the re-setting of the bulged portions to a length of 50 ft. and made watertight.

269. GATES, PAVAGADH HILL, DISTRICT PANCHMAHALS.—The debris on the top of Gate 4 was removed for the examination of the partly-broken roof of the cell. The roof of the cell was made watertight by a layer of lime-cement concreted mortar. The jungle-growth was removed from the flanking ashlar-masonry wall and the joints pointed with suitably-coloured mortar. The broken steps of Gate 2 were repaired in suitably-coloured cement-concrete pitted to match the original rock-cut ones.

270. NAVLAKHA-KOTHAR, PAVAGADH HILL, DISTRICT PANCHMAHALS.—The outer and inner faces of the walls, respectively in rubble and brick, were underpinned. The missing side-jambs and arch-portions of each door and window were repaired, matching the existing adjacent portions. All the loose debris and rubbish were removed, and fresh concrete floors were laid in all the seven chambers. The decayed and cracked concrete plaster was removed from the surfaces of three domes, and one dome was made watertight with concreted plaster. The stone lintels lying in a scattered condition beside the monument were fixed in their original places, and the doors and windows were provided with low railings for the prevention of cattle from entering the monument.

271. BUDDHIST CAVES, UPARKOT, JUNAGADH, DISTRICT SORATH.-Extensive clearance was undertaken at the top of the caves to trace cracks and crevices responsible for the leakages in the roof. In the course of the excavation, many interest-ing ancient features were brought to light (p. 70). The cracks and holes were grouted and the heavily-pitted surfaces refilled with earth.

Rajasthan

272. TEMPLES, ARTHUNA, DISTRICT BANSWARA—.The dilapidated Nilakantha-Mahadeva temple was taken up for repairs. The work is in progress.

273. GROUP OF TEMPLES, BIJOLIA, DISTRICT BHILWARA.—The dislodged ornamental stones of the plinth of the Undesvara temple were re-set properly in lime-cement mortar suitably tinted to match the adjacent work. The displaced ornamental stones of the roof of the *sabha-mandapa* of the Mahakala temple were re-set and the roof made watertight. The accumulated debris around the temple was excavated and the area cleared. Flush pointing done in the past was raked out and replaced by recessed pointing.

274. GROUP OF MONUMENTS, BADOLI. DISTRICT CHITORGARH.—The cruciform *kund* situated in the courtyard of the inner group of temples had been in a completely dilapidated condition, with its masonry heavily disturbed by the deep penetration of tree-roots. A part of the affected area was dismantled and re-set in lime-cement mortar. The work at the inner *kund* and temple (*1957-58,* p. 100) was completed.

The dislodged ornamental stones of the *sabha-mandapa* of the Ashta-mata temple were taken down for the re-setting of the tilted pillars and refixed in their ori-ginal positions. A stone apron, 6 ft. wide, was provided around the temple to stop the percolation of rain-water into the foundation.

The debris, totally covering the plinth of the Siva temple of the outer group was excavated and the plinth brought to light. The missing portion of the plinth was repaired with ashlar-masonry in lime-cement mortar, matching the adjacent masonry. The uneven and dislodged flooring was re-set on a proper concrete-bed. The missing parapet-wall to the north and west of the *kund* in front of the temple was reconstructed. Some new features, as a cistern in the front courtyard of the temple, connected with the *kund* by a drain, were exposed during the work.

The construction of two culverts over the nullahs between the outer and inner groups of munuments is in progress.

275. GROUP OF MONUMENTS, FORT, CHITORGARH,—The modern accretions in the southern part of the palace of Ratansingh, besides some near the inner gate and elsewhere, were removed and the fallen parapet-wall on the south was rebuilt to a length of 60 ft.

An apron, 8 ft. wide, was provided to the north, west and a part of south around the Kukkutesvara temple to stop the percolation of rain-water into the foundation.

The uneven pavement of the Sringar-chauri was dismantled and re-set, and an apron, 6 ft. wide, provided on the east, west and south. A hidden drain was provided for the easy flow of rain-water from the front side of the temple.

The Nagar-khana, situated within Rana Kumbha's palace, was repaired by way of the replacement of broken stone lintels and pillars, renewal of the missing mer-lons and reconstruction of dislodged and cracked portions after the original (pl. CIV). Rusted iron clamps were replaced by copper ones.

In the Zanana-Mahal in Rana Kumbha's palace the group of tilted balconies along the out-of-plumb rubble-masonry wall was rebuilt. Tie-rods were inserted in two stages, one at the lower level below the balcony and the other at the top floor, to secure the framework of the balcony. The tops of all the ruined walls were made watertight.

The other monuments in the fort which received attention were the Kalika-mata, Siva and Ratnesvara temples and Allah-kabra palace.

276. MAHANAL TEMPLE, MENAL, DISTRICT CHITORGARH.—The dislodged ornamental stones of the southern balcony were properly re-set in their original position from the roof to the plinth and made watertight.

277. BRAHMA TEMPLE, MANDOR, DISTRICT JODHPUR.—The flush-pointing done in the past at the plinth of Brahma temple was raked out. All the debris around the temple was removed.

278. BAVAN-DEORI TEMPLE, KUMBHALGARH, DISTRICT UDAIPUR.—The temple situated on the east side of the Kumbhalgarh fort was cleared of vegetation and debris. The tilted and dislodged shrines, sixteen in number, were dismantled and rebuilt with the same stones in lime-cement mortar. Necessary copper clamps were provided.

279. SAS-BAHU TEMPLES, NAGDA, DISTRICT UDAIPUR.—The dislodged and sunk stone pavement of the plinth around the Sas temple was re-laid. The flight of steps in front of the same temple was repaired. The brick *sikhara* and *sabha-mandapa* of the Bahu temple were completely repaired and made watertight.

MONUMENTS MAINTAINED BY STATES

ANDHRA PRADESH STATE

1. KHAZANA-BUILDING, GOLKONDA, DISTRICT HYDERABAD.—The terrace of the monument was repaired in patches in cement-mortar to make it water-tight. Behind the building, a compound-wall was constructed in random-rubble masonry to a height of 4 ft.

2. KAIRATI BEGUM'S TOMB, KAIRATABAD, HYDERABAD.—Patch-repairs were done to the platform in lime-concrete. Decayed lime-plaster was removed from and re-plastering done to the inner and outer arches of the walls. The dome and terrace were made watertight, the former by cement-pointing and the latter by the removal of the decayed lime-plaster and re-plastering of the surface with cement-mortar.

3. FORT MEDAK.—In the eastern and northern sectors of the fort a bastion and parts of the fortification-wall had fallen, at places down to the foundation-level, on account of heavy rains. After the removal of the debris, the wall was reconstructed up to a height of 6 ft. Besides, ramps were put up, wherever necessary, to prevent any further collapse. Repairs, by way of dry-stone packing in patches, were done to the approach-path.

4. RAMASVAMI TEMPLE, KONDAPARTY, DISTRICT WARANGAL-.After the removal of the dump from around the temple, a gentle outward slope was given to the adjoining ground for an easy discharge of rain-water. The *sikhara* and terrace were made watertight by repairs with lime.

BOMBAY STATE

5. MONUMENTS, DISTRICT GOHELWAR.—General clearance was carried out and protection notice-boards were set up at the following monuments: Ganga-chhattri and Old Darbargadh, Bhavnagar; and Satseri and Brahmakund, Sihor.

6. MONUMENTS, DISTRICT HALAR.—Minor repairs were done to and protection notice-boards fixed at the following monuments: Lakhoto and Nagnath temples, Jamnagar; Bileswar temple, Bileswar; fort, Modpar; Panchayatana temple, Pachhatar; Panoti temple, Hathala; and Bhuchar-Mori, Dhrol.

7. MONUMENTS, DISTRICT JHALAWAR.—General clearance was done and protection notice-boards were put up at the following monuments; Ganga-vav and Madha-vav, Surendranagar; Sati-memorial and Sundari-Bhavani, Halwad; Kera well, Chobari; and step-well, Dhadhalpur.

8. MONUMENTS, DISTRICT MADHYA SAURASTHRA.—Minor repairs were done to and protection notice-boards fixed at the following monuments: Jadesvara-Mahadeva temple, Vankaner; Kuber-vav, Morvi; Old Darbargadh, Dhoraji; and old temples, Supedi.

9. MONUMENTS, DISTRICT SORATH.—Silt-clearance was undertaken at Adichadi-vav, besides the removal of vegetation. Clearance was done at the Rudresvara and Sasibhushana temples and caves at Prabhas Patan.

MADHYA PRADESH STATE

The following monuments received attention.

10 MONUMENTS, CHORPURA, DISTRICT GWALIOR.

11. MONUMENTS, KOTRA, DISTRICT RAJGARH.

10. MONUMENTS, NARWAR, DISTRICT SHIVPURI.

13. MONUMENTS, MADKHERA, DISTRICT TIKAMGARH.

MYSORE STATE

14. MONUMENTS, KALYANI, DISTRICT BIDAR.-Minor repairs were carried out to the monuments and the approach-roads thereto improved.

15. AYLOR-MANZIL, SHORAPUR, DISTRICT GULBARGA.-The roof of the front verandah and a room had suffered damage and a portion thereof had collapsed. The fallen portion was rebuilt, closely on the model of the original and the damaged part duly repaired.

ORISSA STATE

16. MOHINI TEMPLE, BHUBANESWAR, DISTRICT PURI.-The floor of the jagamohana was thoroughly repaired with chisel-deressed stone slabs. The wide cracks in the walls were filled by grouting.

RAJASTHAN STATE

The following monuments received attention.

17. MONUMENTS, DISTRICT JAIPUR.—Palaces and cenotaphs, Amber; and cenotaphs, Nahargarh fort and observatory, Jaipur.

18. TEMPLES, MANDORE, DISTRICT JODHPUR.

19. PALACES, MOTI-MAGRI, DISTRICT TJDAIPUR.

IX. ARCHAEOLOGICAL CHEMISTRY

TREATMENT OF MONUMENTS AND PAINTINGS[1]

ANDHRA PRADESH

1. VIRABHADRASVAMI TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR.—The work of removing soot, oil and dirty accretions from the paintings on the ceiling of the inner shrine was continued (*1957-58*, p. 108). The paintings on the outer wall of the Ramalinga shrine were brought to light by the removal of the lime-coat.

BOMBAY

2. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—The work of the removal shellac-varnish from the paintings on the walls and ceilings of Caves 16 (pl. CV A) and 17 was continued *(1957-58*, p. 108). At places, a thin coat of vinyl acetate was also applied after the removal of the varnish. The damaged edges of the painted plaster were filleted with suitably-tinted plaster of Paris. Paint-films, wherever loose, were secured to the priming with a thick solution of vinyl acetate.

3. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—In Cave 32, the work of the cleaning and preservation of the paintings on the ceiling (pl. CV B) was continued (*1957-58*, p. 108). Besides the broken edges of the painted plaster in this cave as well as in the Ganesa-*lena* were filleted.

4. MAHAKALI TEMPLE, CHANDA.—The work of the cleaning and preservation of the paintings on the temple-walls, started last year (*1957-58*, p. 108), was completed.

5. TEMPLES AND LOOSE SCULPTURES, MARKANDI, DISTRICT CHANDA.—The chemical treatment of the facades of temples and loose sculptures (pl. CVI), which had been affected by algal and vegetational growth, was undertaken after elaborate preliminary arrangements necessitated on account of the remoteness of the locality, and a substantial part of the work was carried out.

MADHYA PRADESH

6. KANDARIYA-MAHADEVA TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—In continuation of the earlier work (*957-58*, p. 109), vegetational and other harmful accretions were removed from the upper parts of the temple.

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[1]Nos. 1 to 3 and 11 to 14 were attended to by the Assistant Archaeological Chemist in India, no. 16 by the Department of Archaeology and Museum, Government of Orissa, and the rest by the Archaeological Chemist in India.

7. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.-In continuation of the earlier work *(1957-58,* p. 109), a large part of the painted surface in Cave 4 was subjected to chemical treatment. In Cave 2, the soot-coated paintings were thoroughly re-examined and comprehensive data collected, in the light of which further work will be planned and executed.

8. CHAUSATH-YOGINI TEMPLE, BHERAGHAT, DISTRICT JABALPUR.—A sizable portion of the decaying sculptured surface was freed from injurious overgrowth and salts, treated with fungicides and consolidated with preservatives.

9. MUGHUL HAMAM, BURHANPUR, DISTRICT NIMAR (EAST).—The painted floral patterns in one of the rooms of the monument were subjected to chemical treatment, as a result of which water-marks, mud and lime-streaks and injurious accretions were removed.

10. ROCK-CUT CAVES, UDAIGIRI, DISTRICT VIDISHA.—The chemical treatment of sculptures and inscriptions was completed (*1957-58,* p. 109).

MADRAS

11. BRIHADISVARA TEMPLE, THANJAVUR.—The work of cleaning the paintings on the walls of chambers 1, 2 and 3 was carried out (pl. CVII A). Besides, the loose edges of the painted plaster were consolidated.

12. CAVE-TEMPLE, TIRUMALAIPURAM, DISTRICT TIRUNELVELI.—Accretions of soot, dirt, oil, etc., were removed from the paintings on the ceiling of the cave. The damaged edges of the painted plaster were secured by filleting and the loose paint-films refixed to the priming.

MYSORE

13. GOMATESVARA STATUE, SRAVANABELGOLA, DISTRICT HASSAN—In continuation of the earlier work (*1957-58,* p. 109), further discoloured portions of the statue were cleaned. The cracks on the feet and right thigh and forefinger of the statue were cleaned and filled with silicaseal. Experiments were also conducted to find out a suitable water-repellent.

14. DARIA-DAULAT-BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—The paintings on the northern and southern outer walls were cleaned, consolidated and preserved (pls. CVII B and CVIII). Work was also started on the paintings in the corner rooms.

ORISSA

15. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURL—The chemical treatment of the temple, in progress for the last two years (*1957-58,* p. 110), was brought to completion. After the treatment the temple presents a fine appearance.

16. MOHINI TEMPLE, BHUBANESWAR, DISTRICT PURL—The entire temple-surface was freed from moss and lichen and treated with fungicides.

17. RAJA-RANI TEMPLE, BHUBANESWAR, DISTRICT PURL—The clearance of moss, lichen and plant-roots from the sculptures on the exterior of the temple was undertaken, and further work is in full swing.

PANJAB

18. TEMPLE, BAUNATH, DISTRICT KANGRA.—Work was taken up to free the sculptures from moss, lichen, injurious salts and, in some cases, lime-coating. The stone, found to be very friable, would require consolidation, which will be done after a full elimination of the salts and other accretions.

UTTAR PRADESH

19. 'ITIMADU'-DAULAH'S TOMB, AGRA.—The chemical treatment of the paintings, in progress for the last three years (*1957-58*, p. 110), was completed. The occurrence of colloidal lime on the painted surface in some areas presented some difficulties, which, however, were overcome after experimentation.

20. RAM-BAGH, AGRA.—The recently-discovered patch of paintings was exposed by the removal of the overlying layer of limewash and preserved. The colours are faint, but the scene is fairly clear.

21. GROUP OF MONUMENTS, FATEHPUR SIKRI, DISTRICT AGRA.—The work of chemical treatment and preservation of the paintings at different monuments, in progress for the last three years (*1957-58*, p. 110), was completed. As a result, several historical scenes depicted in these paintings have been brought to light. Particular care was taken to bring out the original colours as far as possible.

22. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.—The work of cleaning and preserving the paintings in the Sunehri-Mahal, started previously (*1957-58*, p. 110), was completed. Surviving portions of the gold pigment were brightened up by the removal of extraneous matter deposited thereon. Other colours were also generally freed from the overlying accretions.

A marble *jali* of the tomb, with its thick accumulation of fat and soil laid by the hands of visitiors, was thoroughly cleaned.

23. MONUMENTS, KHUSROBAGH, ALLAHABAD.-The chemical treatment of the paintings, in progress for the last three years (*1957-58*, p. 110), was completed.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM-EXHIBITS

1. THE ARCHAEOLOGICAL CHEMIST IN INDIA provided chemical treat-ment to about a thousand antiquities, variously of bronze (pl. CIX), copper, lead, silver, stone, ivory, etc., received from the Circles, Excavations Branch and site-museums of the Department. Preliminary work was also carried out regarding the mounting and preservation of textiles, silk and other painted materials, formerly in the charge of the Central Asian Antiquities Museum, New Delhi, and now made over to the National Museum, New Delhi.

2. THE ARCHAEOLOGICAL CHEMIST, ASUTOSH MUSEUM, CALCUTTA, cleaned and preserved a large number of antiquities comprising terracottas, coins, variously of copper, bronze and silver, Nepali manuscripts and objects of wood and ivory. Treatment was also given to objects for the prevention of the growth of fungi, moulds, etc.

3. THE NATIONAL MUSEUM, NEW DELHI, chemically treated, preserved and restored about two thousand art-objects, comprising manuscripts, paintings, drawings, sketches, coins, bronzes, etc. Of special interest was the treatment and restoration of the manuscripts, twenty in number, amongst which particular mention may be made of the *Babar-nama, Shah-nama* and *Jamiu't-Tawarikh,* which had considerably deteriorated, the pigments having become loose and leaves badly stuck up and damaged. Amongst the paintings, particular attention may be drawn to six fragile specimens of Rabindranath Tagore, which were duly restored. The metallic objects, numbering about one thousand, included silver punch-marked and copper coins, inscribed copper plates and bronzes, which were freed from encrustations and injurious salts. Out of the Central Asian collection of Sir Aurel Stein, seventyfive objects, comprising textiles, cordages and manuscripts were preserved. Preparatory treatment, including fumigation, was given to one hundred and fifty textiles, besides repairs to damaged specimens.

RESEARCH[1]

1. GEOCHRONOLOGY.—The geochronological investigation of the micro-lithic site of Birbhanpur, District Burdwan, West Bengal, taken up last year (*1957-58,* p. 112), was continued, and the heavy-mineral study of a large number of soil-samples completed. The work involved the preparation and examination of about one hun-dred and fifty microscopic slides and preparation of two hundred photo-micrographs and thirtyfour line-drawings of zircon mineral grains. A report embodying the results is under preparation.

Soil-samples from the excavation at Lothal were subjected to mechanical ana-lysis and heavy-mineral separation. The work is in progress.

The microlithic sites at Adamgarh quarry, Hoshangabad, and Chhota-Simla and Bara-Simla, Jabalpur, were explored and soil-samples collected for geochrono-logical investigation.

2. TREATMENT AND STUDY OF ANTIQUITIES.—Twentyeight specimens, variously of glazed bricks, pottery and polychrome glass, were subjected to detailed chemical analysis. An investigation into the nature and composition of yellow glasses and yellow constituents of polychrome glasses was initiated. During the investiga-tion some difficulty was experienced on account of the presence of phosphates in the specimens, which, however, was overcome; a procedure for the chemical analysis of yellow glasses containing phosphates was worked out without taking recourse to the analysis of separate samples for this constituent.

Amongst the various problems regarding the treatment of antiquities that re-ceived attention was the one relating to the development of a rapid process for the chemical treatment of corroded and partially distinct objects like coins and inscribed

[1]Carried out by the Archaeological Chemist in India.

metallic antiquities, often required for immediate study or exhibition in a suitable condi-tion. Experiments tended to show that the problem might not be insoluble, at least in the case of smaller objects. At the same time, it became apparent that, after the temporary needs were fulfilled, the objects would have to be reprocessed through chemi-cals to prevent recurrent decay.

3. TREATMENT OF EXCAVATED STRUCTURES.—The protection of excavated mud walls with waterproofed mud bricks formed a subject of study.

4. TREATMENT OF MONUMENTS.—A scarcity of zinc silicofluoride and other fluoride-based fungicides led to trials on the efficacy of other chemicals for the prevention of recurrence of moss and vegetational growth on already-cleaned monu-ments. Some naphthenates were found to afford promise of usefulness in this regard. The purity of certain products was also investigated for the purpose.

5. TREATMENT OF PAINTINGS.—The 'blanche' or whiteness noticed during the chemical treatment of certain painted surfaces received attention. It appears that the effect is due partly to the lodgement, in the network of very fine cracks in the paint-layer, of minute particles of varnish pulverized by the use of solvents during the course of chemical treatment.

X. ARCHAEOLOGICAL GARDENS[1]

DELHI

1. QUTB, DELHI.—The jungle-area behind the *minar* was cleaned and a presentable rustic garden with natural effects laid out. Other improvements, including the returfmg of a couple of plots, were also carried out.

2. RED FORT, DELHI.—The returfing of two lawns, opposite the Rang-Mahal and Diwan-i-Khas, was completed.

3. KOTLA FIRUZ SHAH, NEW DELHI.—A considerable area in this garden was cleared of rubbish and planted with grass.

4. NAJAF KHAN'S TOMB, NEW DELHI.—Preliminary gardening operations were started in connexion with the laying out of a formal garden around the monument.

5. SAFDARJANG'S TOMB, NEW DELHI.—Most of the superfluous annual beds, dwarf hedges, etc., were removed in order to improve the standard of maintenance.

MADHYA PRADESH

6. GROUP OF TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—With a view to improving the water-supply, an old sealed and dilapidated well was re-excavated, and it is proposed to undertake its boring shortly. The uneven land between the Chitragupta and Jagadambi temples was dressed up and planted with grass. The mound of the earth at the back was also dressed up and planted with hardy plants giving the appearance of a rock-garden. Other gardening operations were also in progress.

RAJASTHAN

7. MISCELLANEOUS GARDENS.—The Dilaram garden and Mohan-bari, Amber, the lawns in the Observatory, Jaipur, and the gardens attached to monuments at Mandor, Jodhpur, were taken care of.

UTTAR PRADESH

8. FORT, AGRA.—With the installation of an engine at the *baoli* in front of the Diwan-i-'Am, the water-supply was improved, so that the lawns could be made

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[1]information from: nos. 1-5, the Assistant Garden Superintendent, and nos. 6 and 8-14, Garden Superintendent, of the Department, and no. 7, the Director of Archaeology and Museums, Rajasthan.

green and seasonal flowers introduced in the Anguri-bagh. The lawns in front of the Jahangiri-Mahal were planted with biotas and multi-coloured lantanas.

9. 'ITIMADU'D-DAULAH'S TOMB, AGRA.—A suitable electric motor and pumping set were installed in the garden and steps taken to improve the irrigation-system by the laying out of the pipe-lines and provision of hydrants in the lawn. The forecourt of the monument was considerably improved by the laying of two strips of lawns with stone edging in either side of the roads leading to the monument. A car-park was carved out.

10. KHAN-I-'ALAM, AGRA.—A large number of ornamental plants, such as thirty varieties of roses, palms, crotons, Darcaens, Juniperous, Thuja and several varieties of timber-plants, were introduced in the upper nursery. The age-old and wasteful open-drain system was dispensed with and an underground pipe-line laid.

11. RAM-BAGH, AGRA.—Attempts to rejuvenate the orchard yielded good results. Dilapidated *kachcha* paths were re-built and the sanitation of the entire garden-area greatly improved.

12. TAJ-MAHAL, AGRA.—The long-standing water-problem was satisfactorily tackled by the installation of two suitable electric pumps, each assuring about thirty thousand gallons of water per hour. The central marble-tank and oblong water-pans were thoroughly cleared and rendered free of moss and algae. *Poa* grass was successfully planted as a shade-grass in the lawns. The glass-house in the covered nursery was repaired. A platform for the display of the seasonal flowers was constructed and much of the congestion in the area removed.

13. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.—By the repair and putting into commission of the damaged irrigation-plant, the parched garden round the monument received better irrigation and presented an improved look.

14. MARIAM'S TOMB, SIKANDARA, DISTRICT AGRA.—Gardening operation was undertaken here for the first time. The entire area was thoroughly cleared of jungle-growth and new paths and lawns laid out around this monument. Cypress trees were planted on either side of the road leading to the monument and a number of flowering trees along the periphery. Pipe-lines were laid out and hydrants provided in different plots.

XI. PUBLICATIONS

DEPARTMENTAL PUBLICATIONS

1. 'ANCIENT INDIA'.-Number 14 (1958) of the journal was published. Number 15 (1959) is in the press and will be available by September 1959.

2. ANNUAL REPORT ON INDIAN EPIGRAPHY.—The Report for 1951-52 was published and those for 1952-52 and 1953-54 will be released shortly. The Reports for 1954-55, 1955-56 and 1956-57 are going through the press.

3. CORPUS INSCRIPTIONUM INDICARUM.-Part ii of volume II, *Bharhut Inscriptions*, edited by H. Lueders and revised by E. Waldschmidt, is in the proof-stage. Volume VI, *Inscriptions of the Vakatakas*, edited by V. V. Mirashi, was sent to the press.

4. 'EPIGRAPHIA INDICA'.—The following parts were published: part viii of volume XXX (October 1954); parts v (January 1956), vi (April 1956) and vii (July 1956) of volume XXXI; and parts i (January 1957) and ii (April 1957) of volume XXXII. Parts iii (July 1957), iv (October 1957), v (January 1958) and vi (April 1958) of volume XXXII and part viii of volume XXXI (October 1956) were passed for final printing.

Part vii (July 1958) of volume XXXII and parts i (January 1959), ii (April 1959), iii (July 1959), iv (October 1959), v (January 1960) and vi (April 1960) of volume XXXIII are in the proof-stage. The manuscripts of part vii (July 1960) of volume XXXIII and parts i and ii (respectively January and April 1961) of volume XXXIV are in the press.

5. ''EPIGRAPHIA INDICA—ARABIC AND PERSIAN INSCRIPTIONS SUPPLEMENT'.—The number for 1955-56 will be out shortly.

6. GUIDE-BOOKS.—The following were reprinted: *Ajanta* by Debala Mitra, and *Rajgir*, by M. H. Kuraishi and A. Ghosh. *Bhubaneswar*, by Debala Mitra, was published, and *Udayagiri and Khandagiri* by the same author is in the press. The Hindi versions of *Sarnath* and *Khajuraho* were published, and those of *Sravasti*, *Rajgir*, *Kusinagara*, *Sanchi* and *Ajanta* are in the proof-stage.

7. 'INDIAN ARCHAEOLOGY—A REVIEW'.—The number for 1957-58 was published.

8. MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA.—Number 74, *Kausambi*, by G. R. Sharma, is in the press.

9. PlCTURE-POSTCARDS.—The sets of Delhi (Sets A, B and C), Agra, Sarnath, Sanchi, Chitorgarh, Kanheri, Aurangabad and Daulatabad, Elephanta, Ellora, Ajanta (monochrome and colour), Bijapur and Mahabalipuram were reprinted. New sets of Halebid, Somanathpur and Belur were printed. The following new sets, viz. Hampi, Bhubaneswar (Sets A and B), Konarak (Sets A and B) and Udayagiri and Khandagiri, are in the press.

10. SOUTH INDIAN INSCRIPTIONS.—Volume XIV, *Early Pandyas,* is in the proof-stage. The following are in the press: volume XV, *Bombay-Karnatak Inscriptions,* part ii; volume XVII, *Inscriptions collected during 1903-04;* volume XVIII, *Bombay-Karnatak Inscriptions,* part iii; and volume XIX, *Inscriptions of the Cholas.*

11. TEMPLE-ARCHITECTURE SERIES.—*Pallava Cave-temples,* by K. R. Srinivasan, is in the press, and *Khajuraho,* by Krishna Deva, is ready for the press.

OTHER PUBLICATIONS

1. 'CORPUS OF THE COINS OF. THE GUPTA DYNASTY'.—This work, by A. S. Altekar, was published by the Numismatic Society of India.

2. 'BULLETIN OF THE MUSEUM AND PICTURE GALLERY, BARODA.'—Volume XIII is in the press.

3. 'EPIGRAPHIA CARNATIKA'.—Volume XVII is in the final stage of printing.

4. 'EXCAVATIONS AT MAHESWAR AND NAVDATOLI, 1952-53'.—This work, by H. D. Sankalia, B. Subbarao and S. B. Deo, was published by the Deccan College Post-graduate and Research Institute, Poona.

5. GUIDE-BOOKS.—The Hindi versions of the *Guide to State Museum,* Dhubela, Vindhya Region, and the *Guide to Srirangapatna* were published respectively by the Madhya Pradesh and Mysore Governments. The Hindi version of the *Guide to Belur,* undertaken by the latter Government, is in the final stage of printing.

6. PICTURE-POSTCARDS.—The Asutosh Museum of Art, University of Calcutta, published a second set of postcards of representative Bengal sculptures.

7. MlSCELLANEOUS.-The Madhya Pradesh Government published a booklet in Hindi called *Madhya Pradesh Chaturdham,* by H. V. Trivedi, embodying archaeological information on Ujjayini, Vidisa, Maheswar and Mandasor. The report on the excavations at Sirpur, District Raipur, is in the press. The Government Museum, Madras, is publishing the following: *The Gopuras of Tiruvannamalai; the Story of Buddhism with special reference to South India,* by A. Aiyappan and P. R. Srini vasan; and *the Beginning of the Tradition of South Indian Temple Architecture,* by P. R. Srinivasan. The first two are in the final stage of printing. The Department of Archaeology and Museum, Orissa, published *The Inscriptions of Orissa, A Descriptive Catalogue of Sanskrit Manuscripts* and a Sanskrit drama, *Chandrakala,* written by Visvanatha Kaviraja.



A

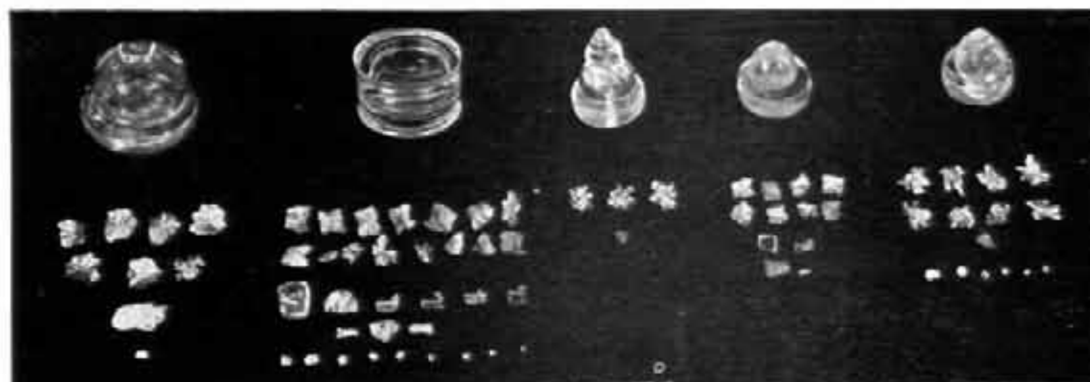


B



C

Amaravati: A, *view of excavation;* B *and* C, *stone images.* *See page 5*



A



B



C



D

Amaravati: A, *crystal relic-casket with contents;* B-D, *stone sculptures. Scale of* A, ¼. *See p. 5*



A



B

Nagarjunakonda : A, *coarse flakes from neolithic (first row) and microlithic (second row) sites;* B, *microlithis from microlithic (first and second rows) and neolithic (third and fourth rows) sites.*
See p. 6



A

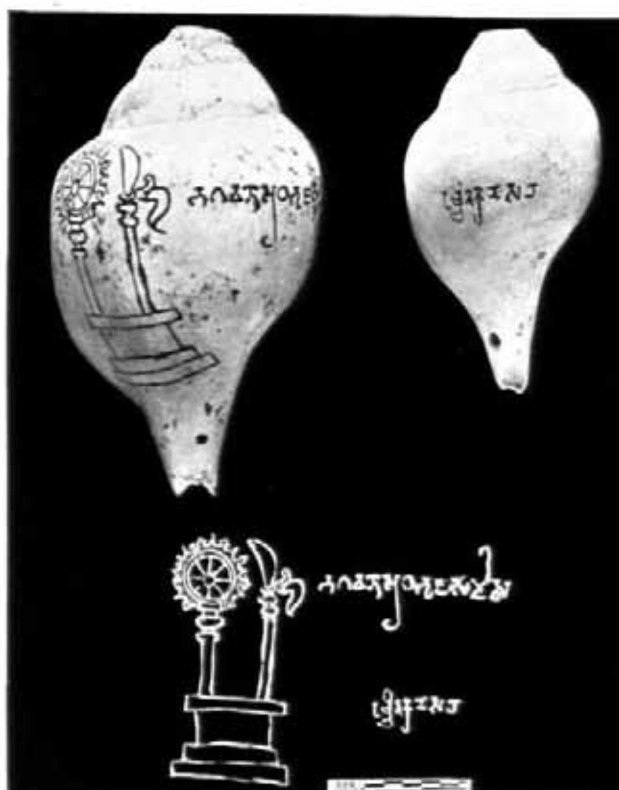


B

Nagarjunakonda: A, *Stupa 9;* B, *stupa with svastika-base.* *See page 6*



A

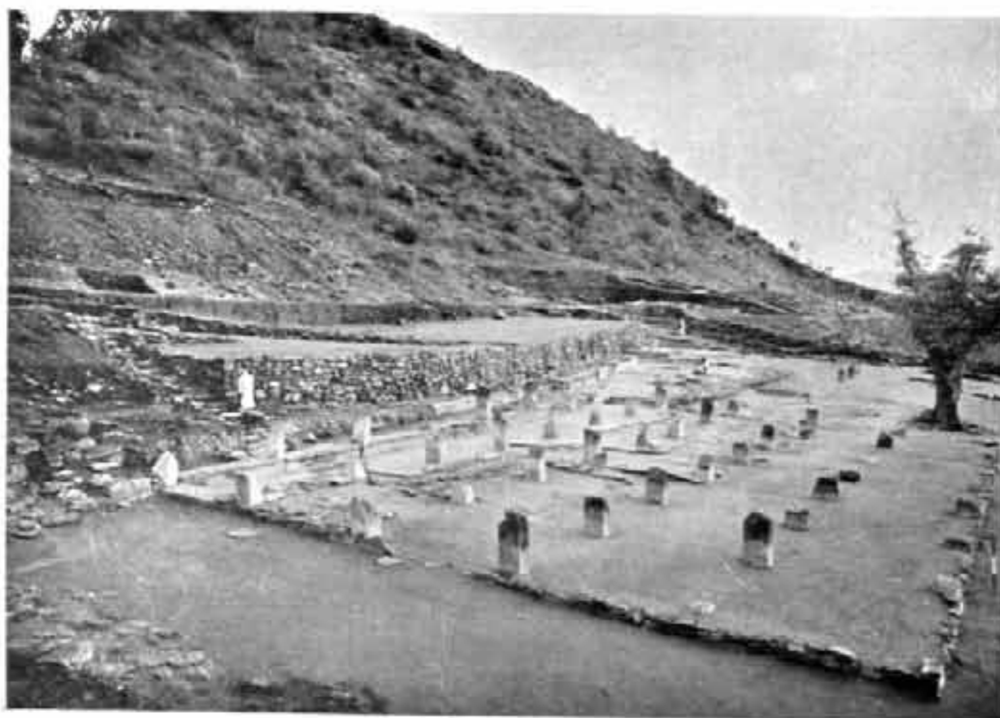


B



C

Nagarjunakonda: A. *inscribed stone;* B. *inscribed conch-shells;* C. *gold plaque.* *See p. 8*



A



B



C

Nagarjunakonda: A, *cremation-ground*; B *and* C, *stone sculptures representing respectively lady against ladde ...d lady lying in state.* *See p. 8*

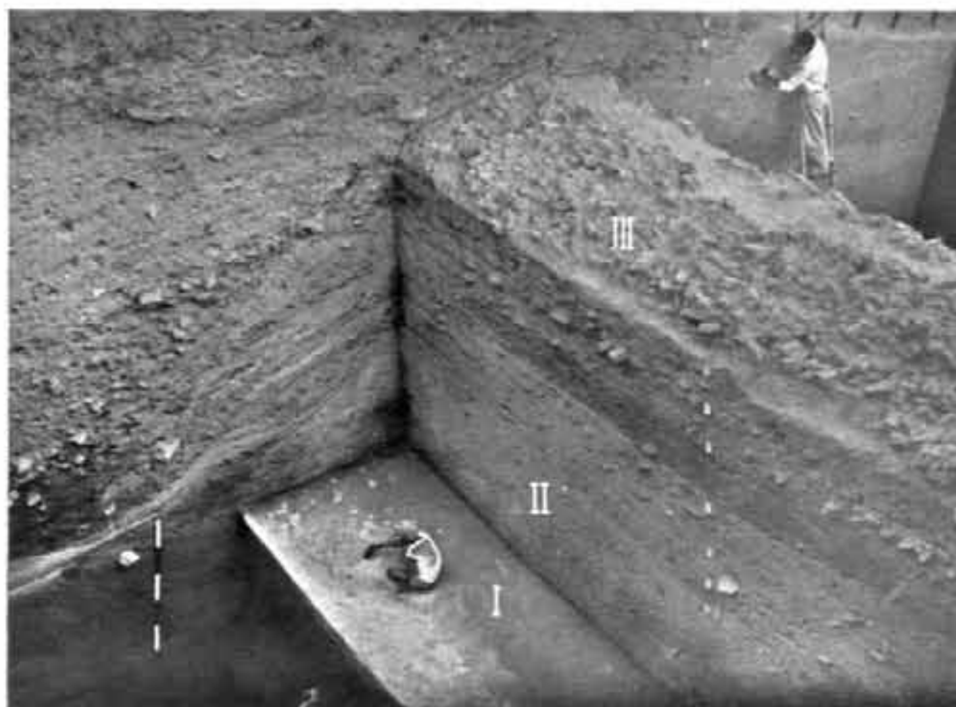


A

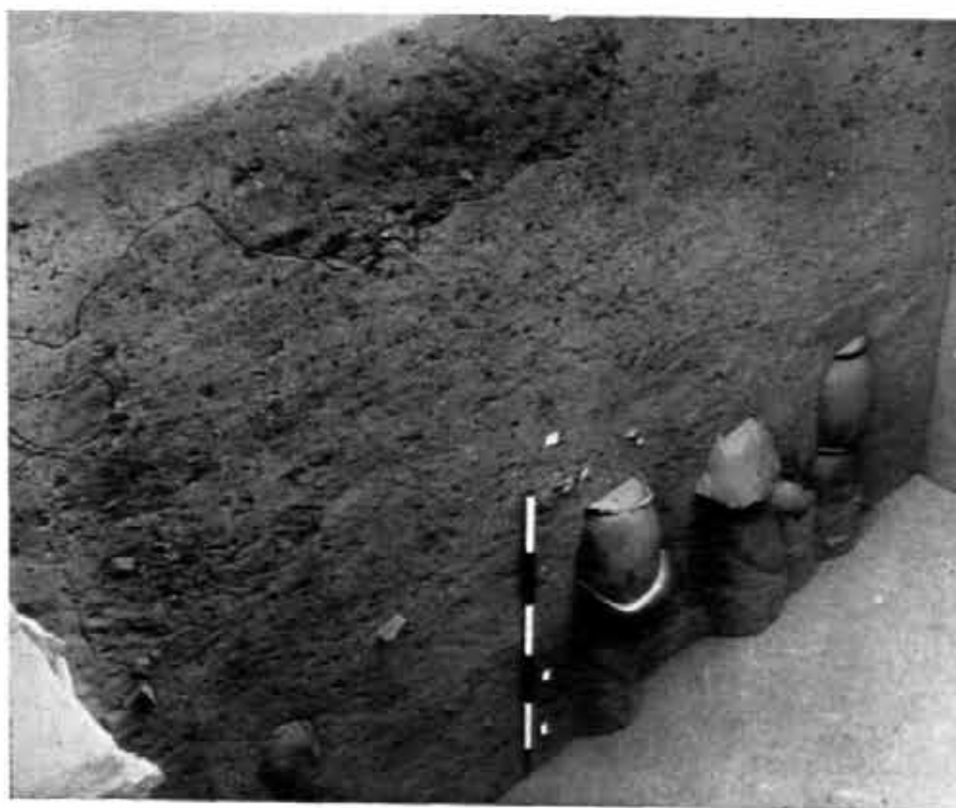


B

Nagarjunakonda: A, *section across a canal;* B, *section across the defences of the citadel.*
See pp. 8 and 10



A



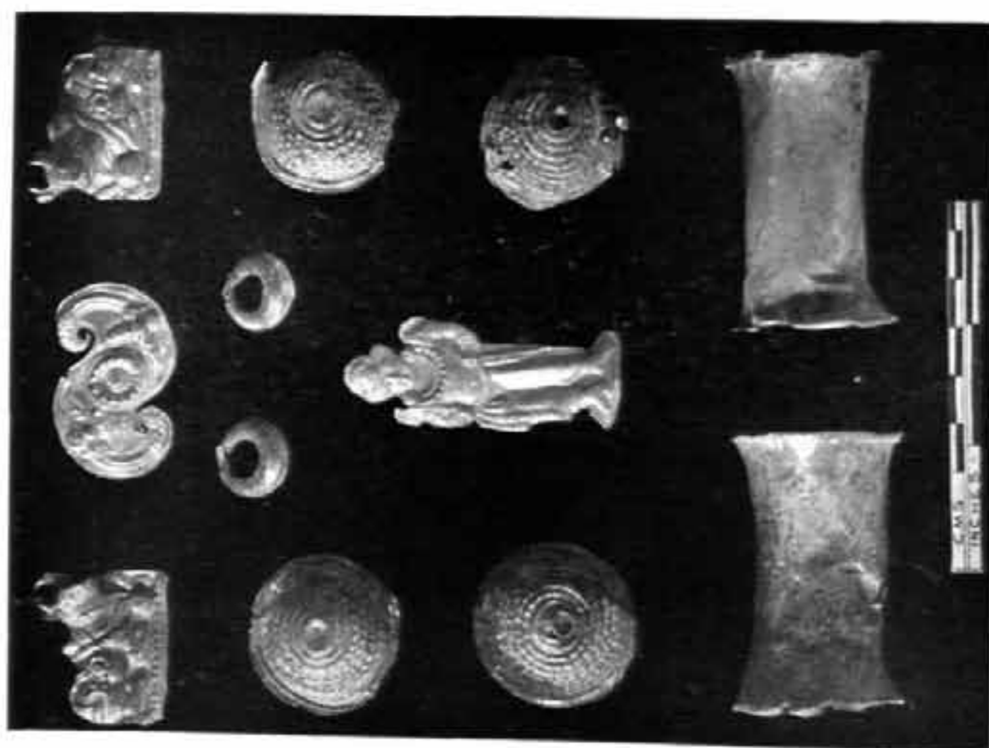
B

Vaisali: A, *three Periods of defences;* B, *soakage-jars, Period II.* *See p. 12*



Vaisali : A, terracotta sealing of Agnimitra. Period II; B, *terracotta sealings. Period III. Scale of* B, [illegible].

See p. 12



B

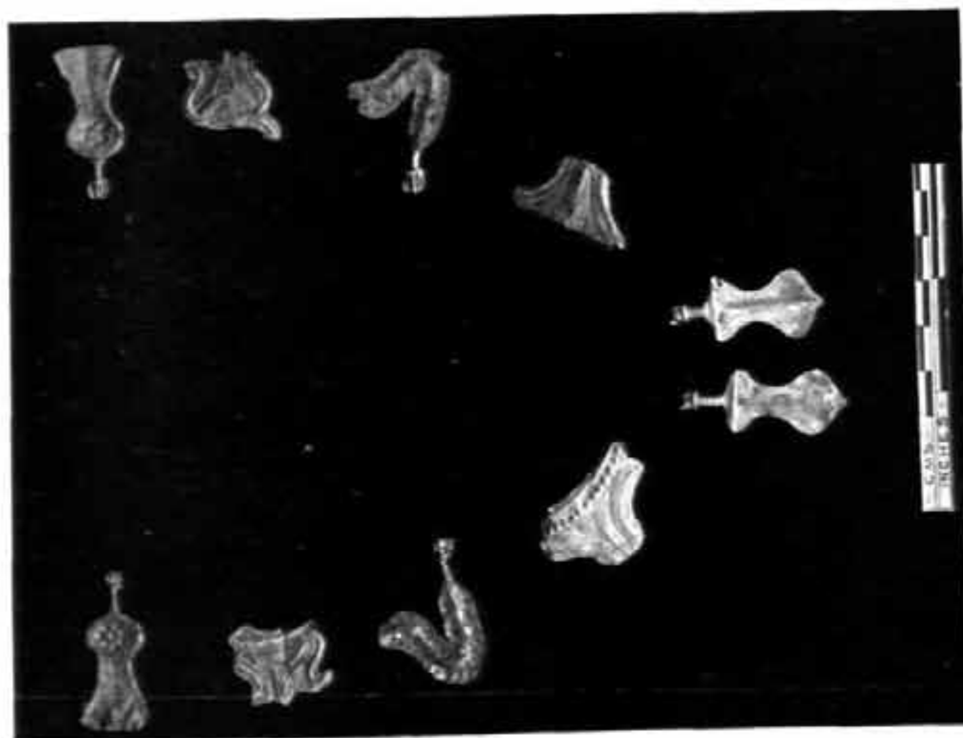


A

Vaisali: A, *grey sherds with paintings;* B, *gold objects, Period III.* *See p. 12*

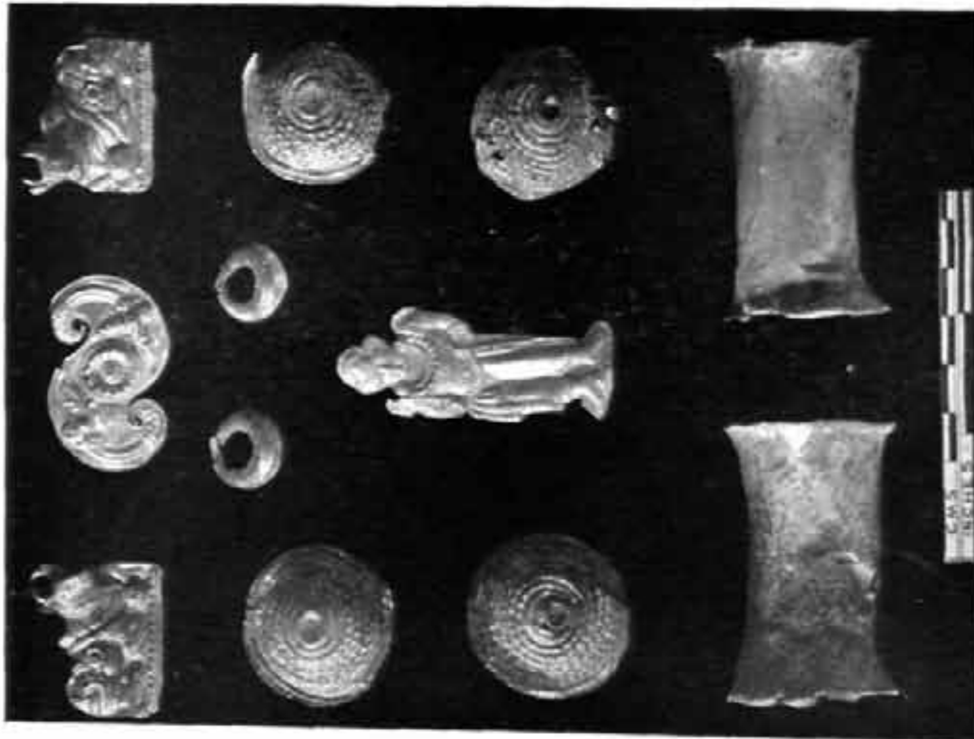


B



A

Vaisali: A, *silver amulets, Period III;* B, *stone beads, Period III.* *See p. 12*



B

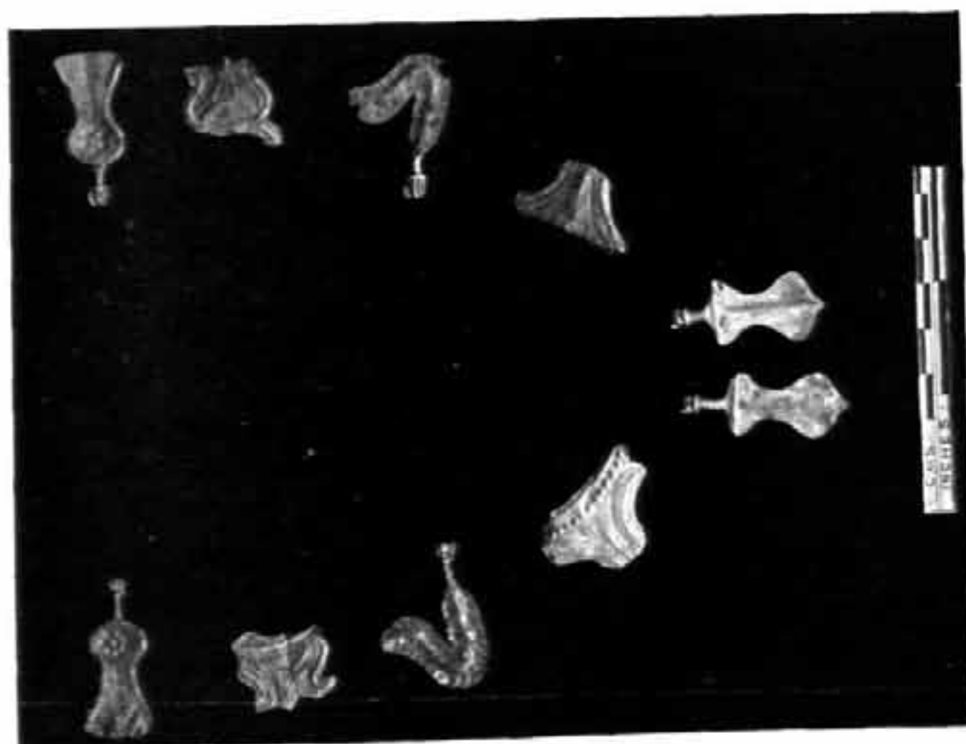


A

Vaisali: A, grey sherds with paintings; B, gold objects, Period III. *See p. 12*

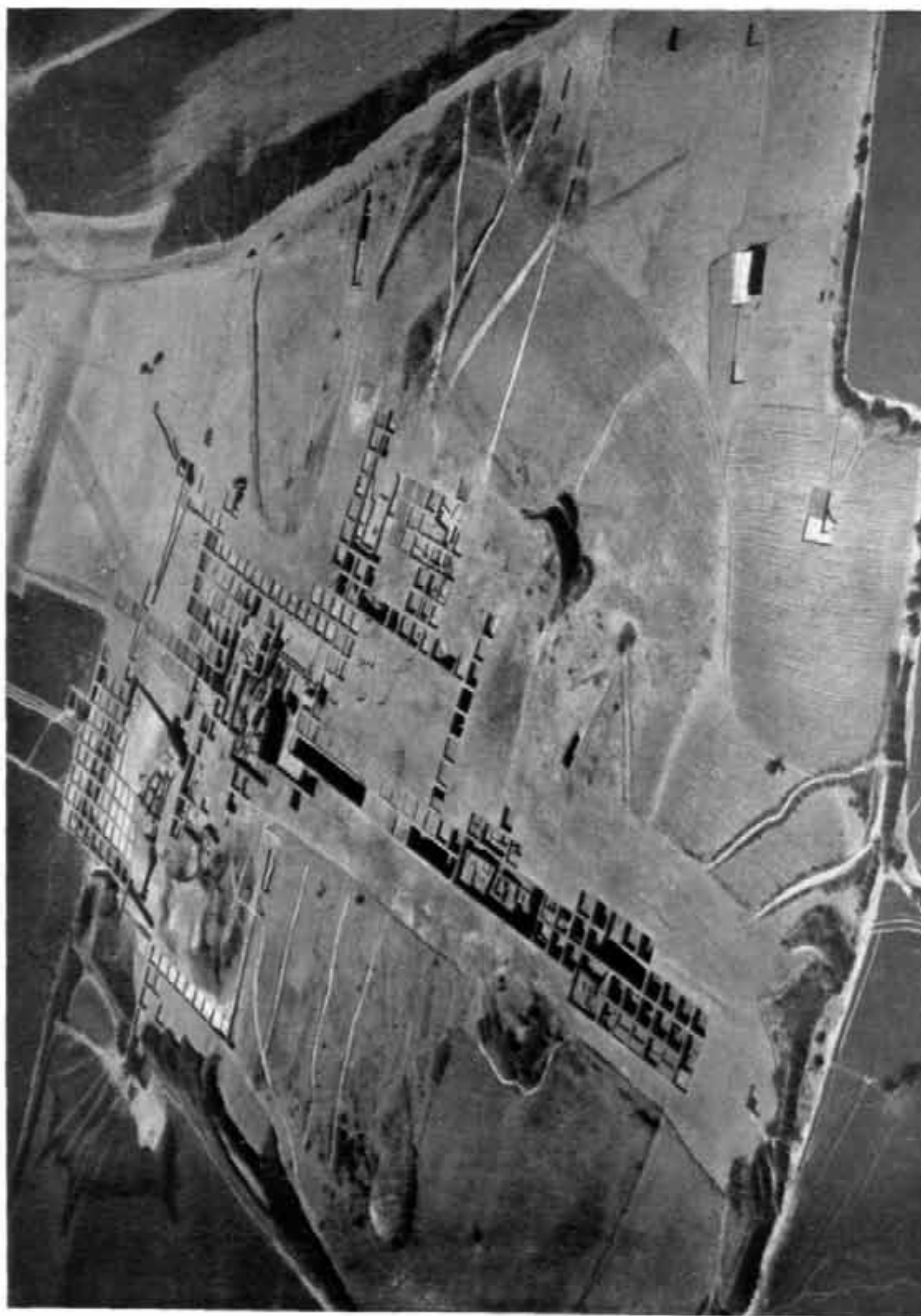


B



A

Vaisali: A, *silver amulets, Period III;* B, *stone beads, Period III.* *See p. 12*



Lothal: air-view of excavation. See p. 13. *(Photograph by Air Survey of India Private Ltd., Dum Dum)*



A

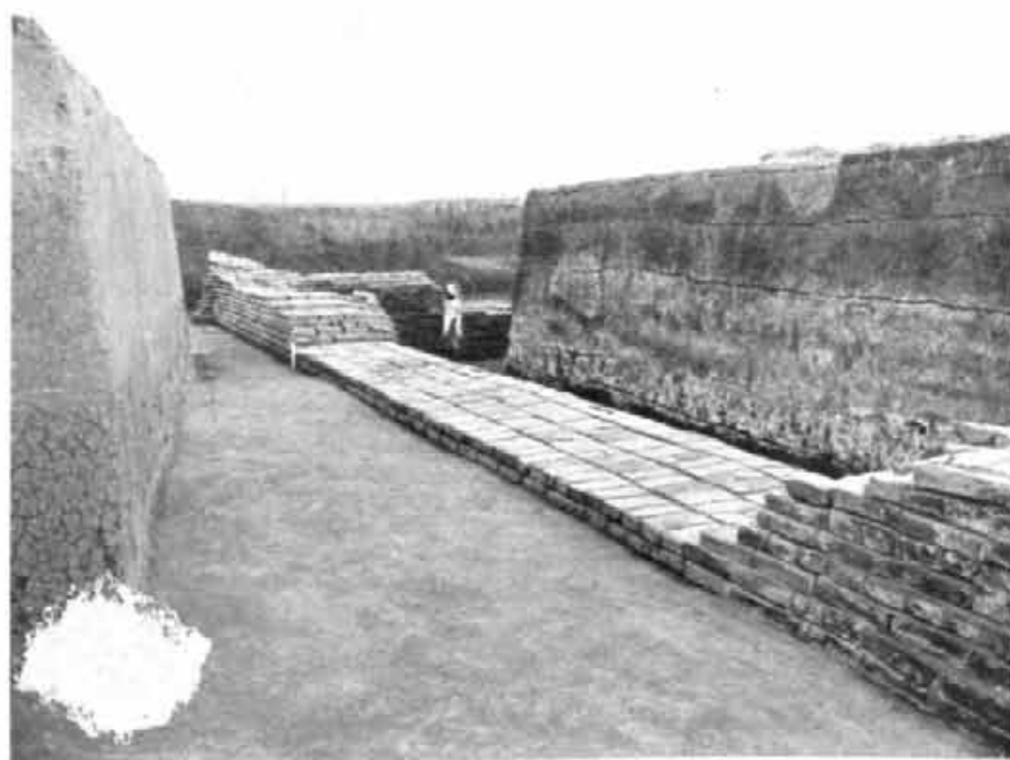


B

Lothal: A, *drain with holes for sluice-gate;* B, *spill-channel of dockyard with grooves for door.* *See p. 14*

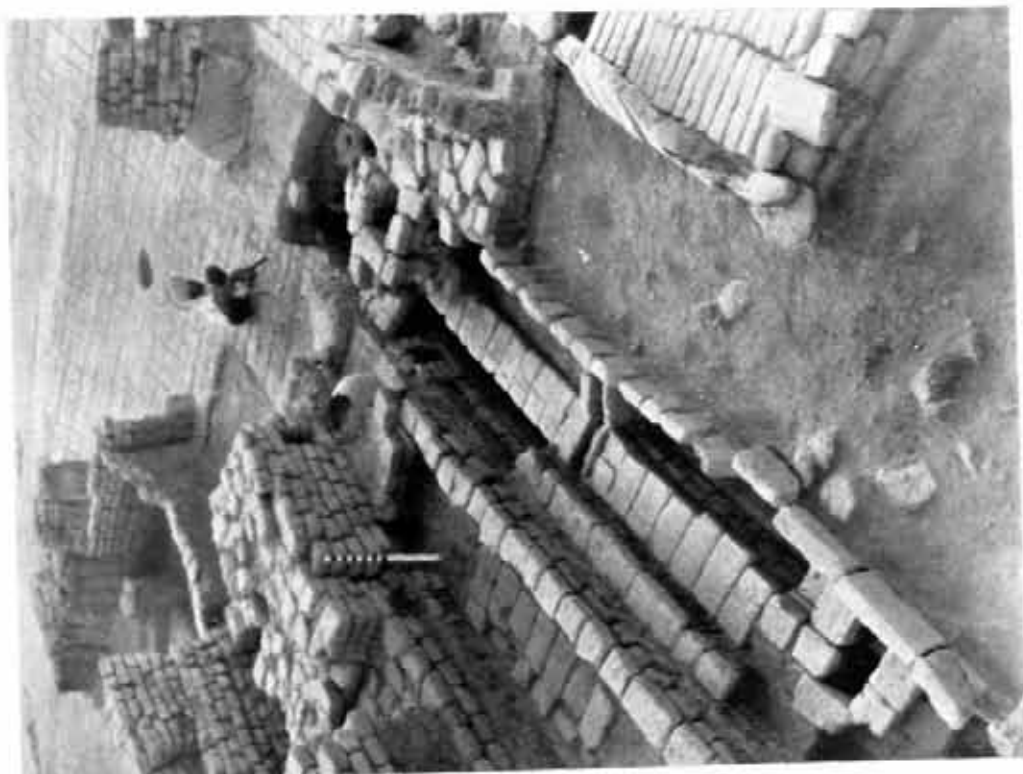


A

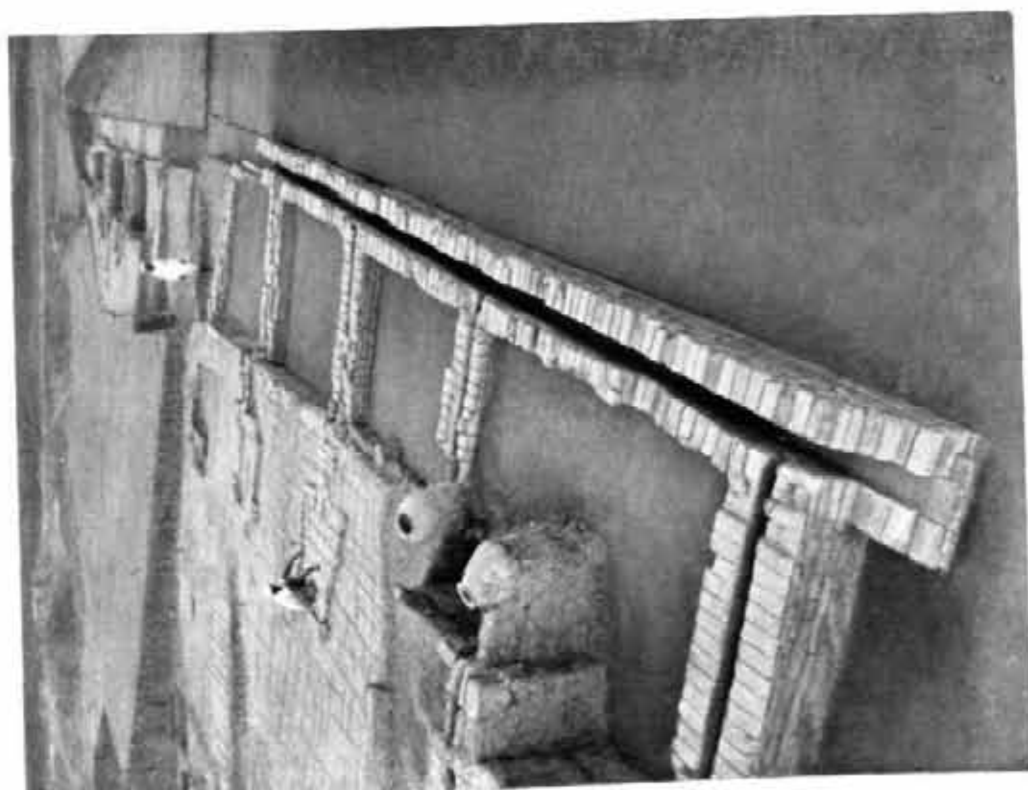


B

Lothal: A. southern and eastern embankments of dockyard; B. gap in the eastern embankment. *See p. 14*

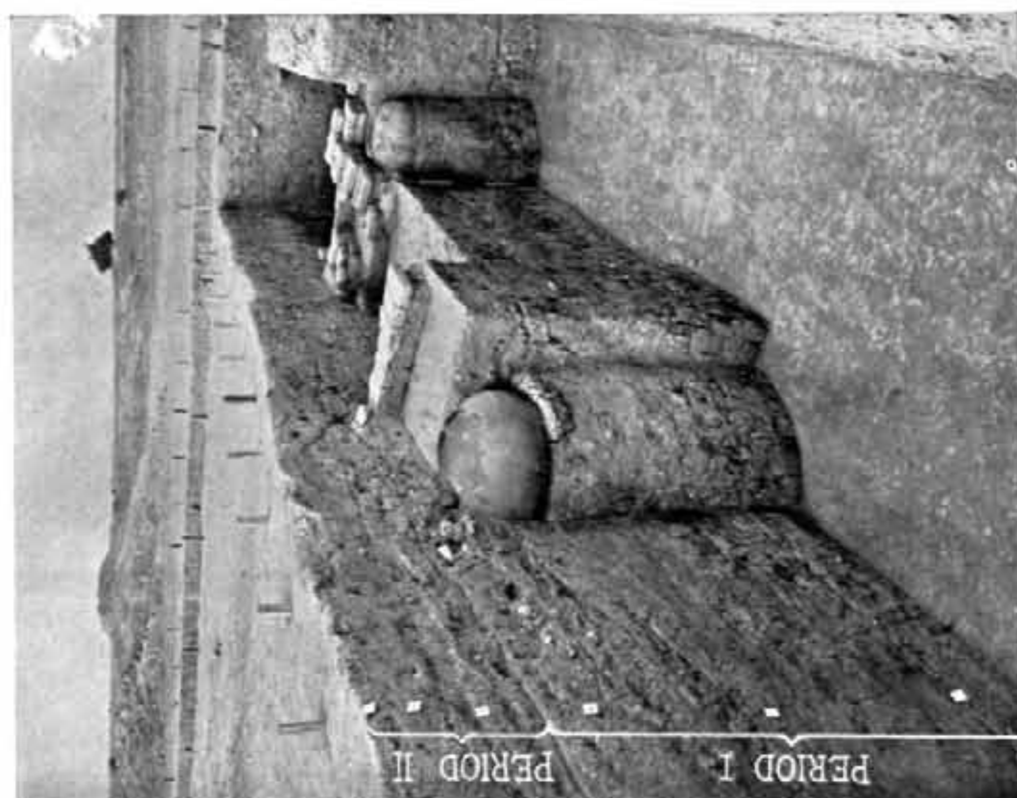


B

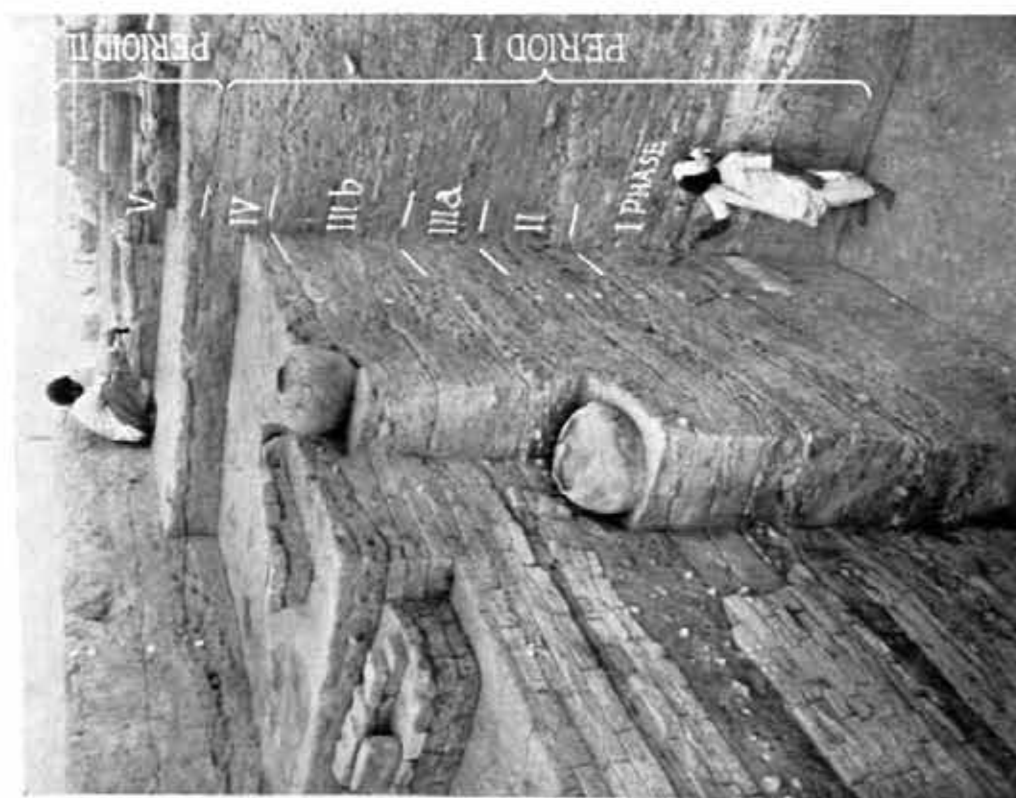


A

Lothal: houses, bath-rooms and drains. See p. 14



B

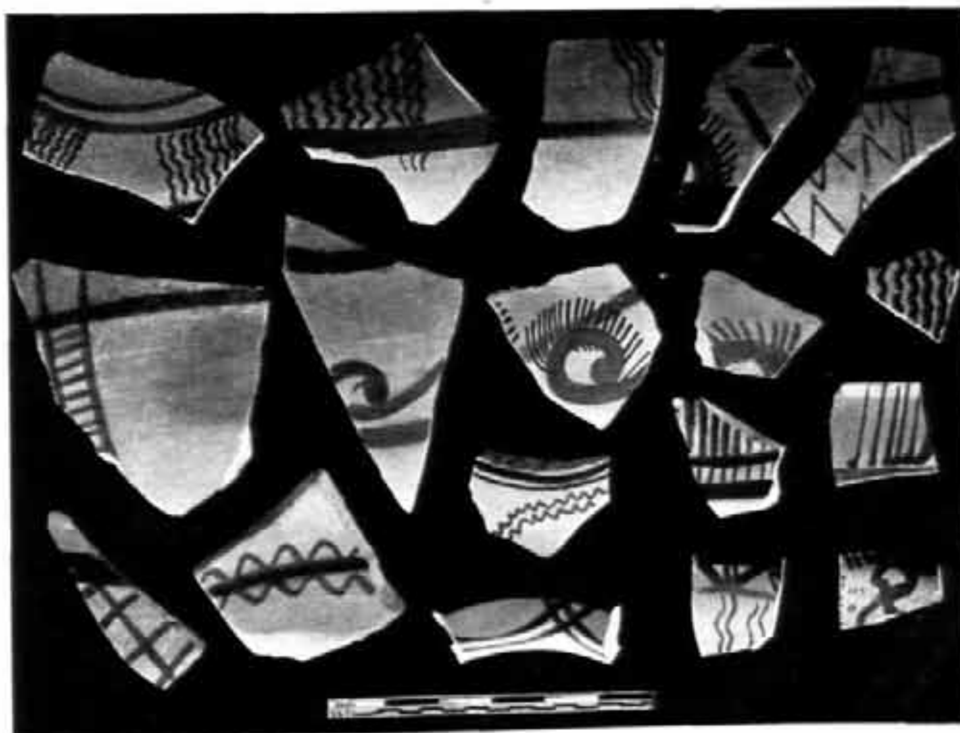


A

Lothal: two Periods of occupation. See p. 14



A



B

Lothal: painted pottery, A. *Period I. and* B. *Period II.* *See p. 14*



A



B

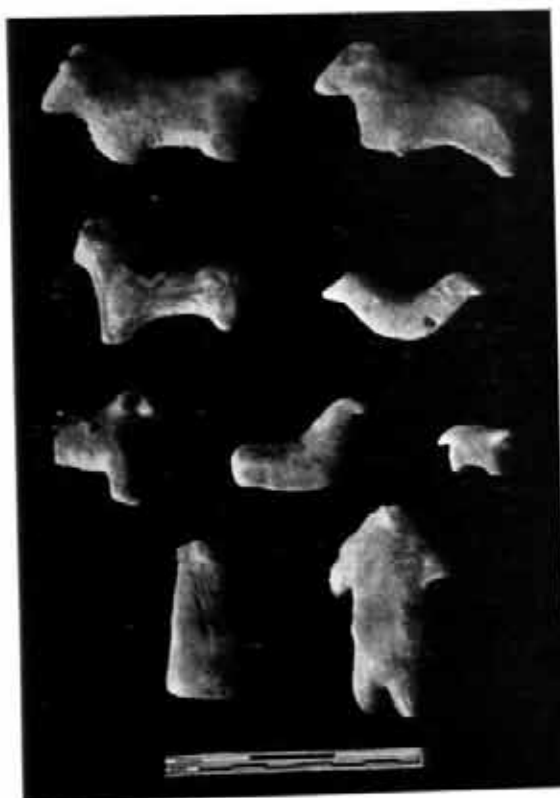


C



D

Lothal: A, *clay and steatite seals, Period II;* B, *terracotta sealing, Period I;* C, *steatite seal, length* $1\frac{5}{8}$ *in., Period I;* D, *grooved copper rod, length* $6\frac{1}{4}$ *in., Period I.* *See pp. 14 and 15*



A



B

Lothal: A, *terracotta figurines, Period II;* B, *terracotta whorls and cart-frame, Period II.* *See p. 14*



A

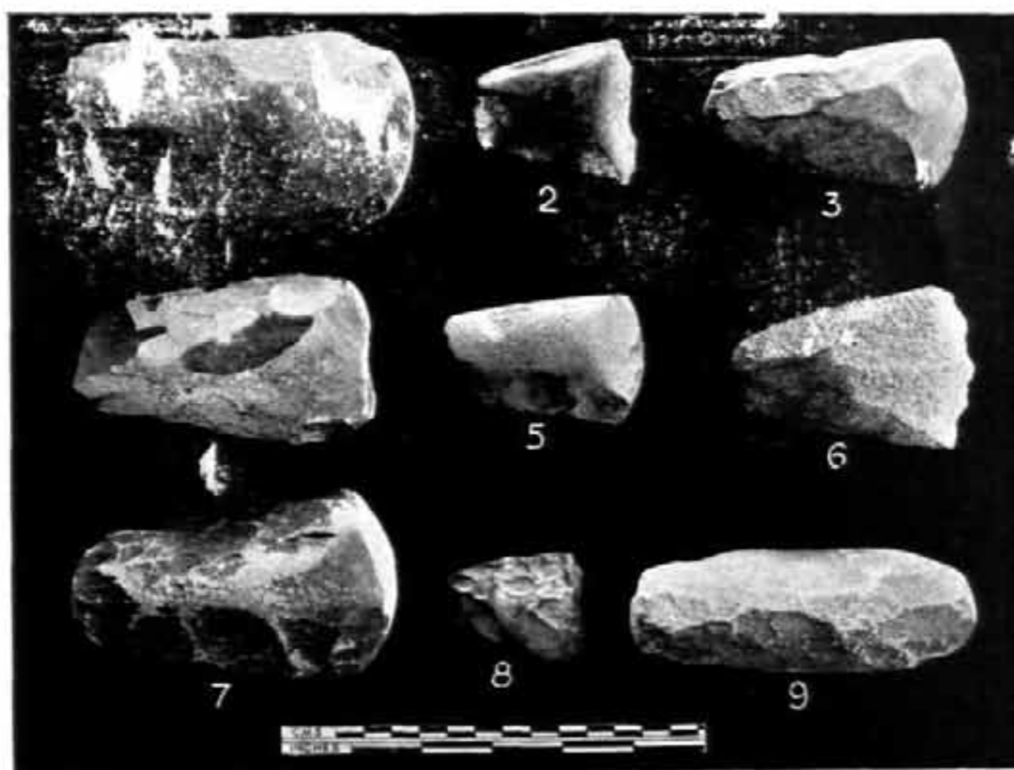


C



B

Lothal: burials. A *and* B, *Period I. and* C, *Period II.* *See pp. 14 and 15*

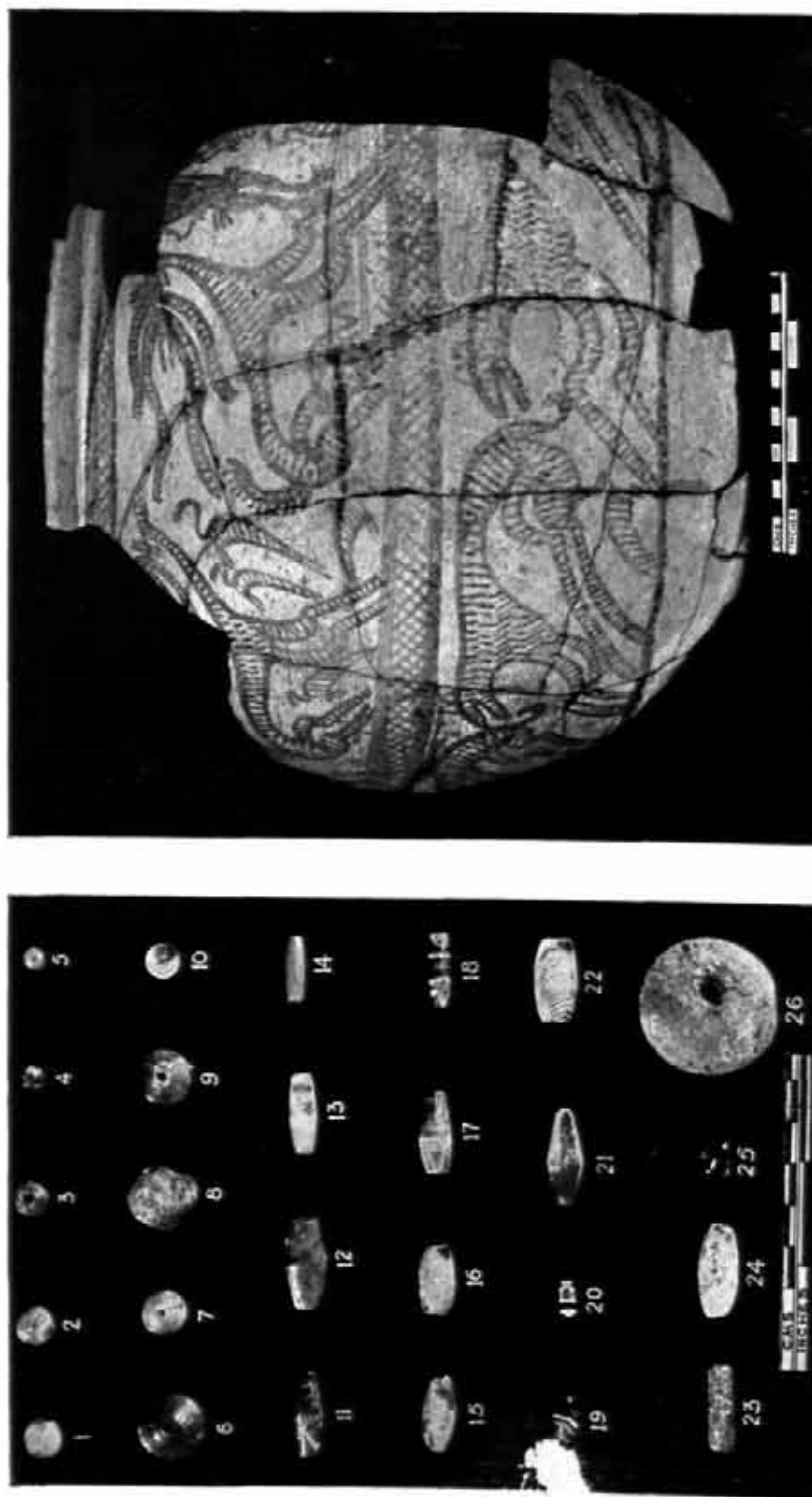


A



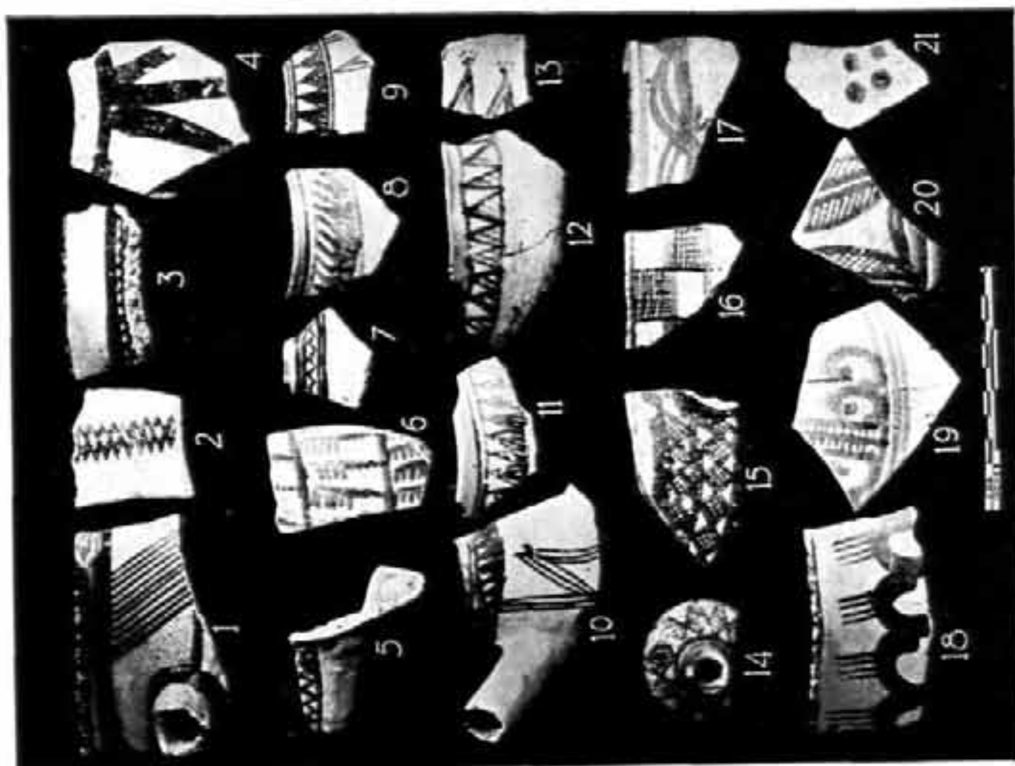
B

Daimabad: A. *stone axes, surface;* B. *copper objects, Phase II.* *See pp. 15 and 17*

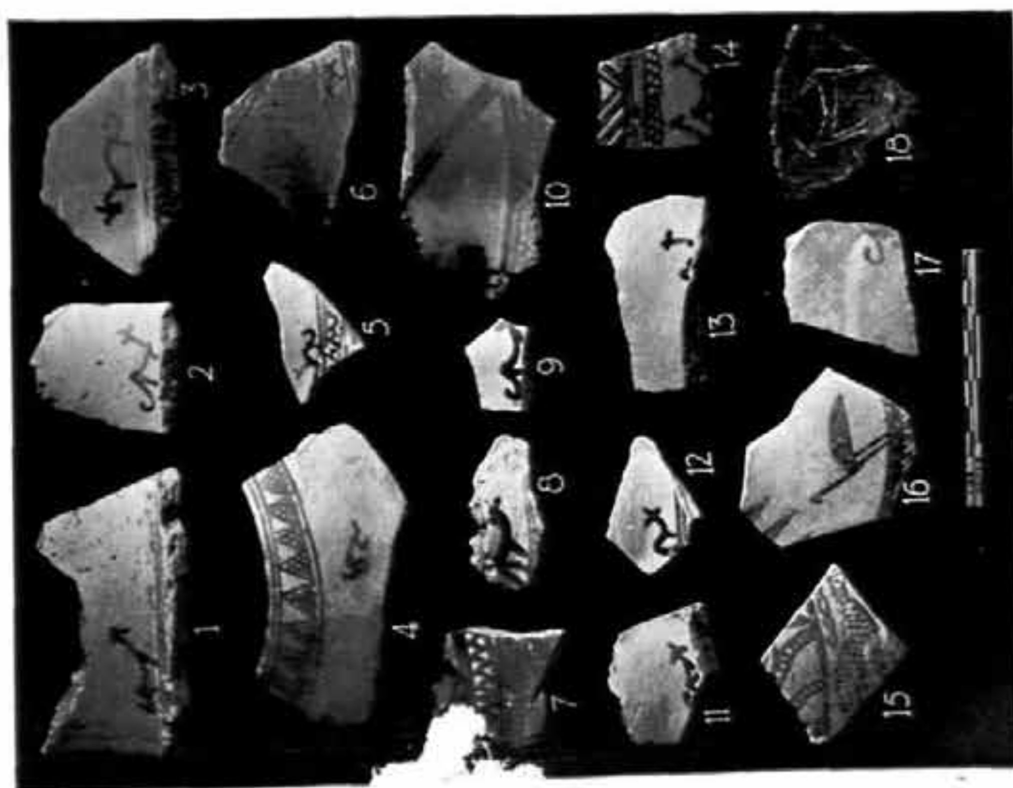


A B

Daimabad: A, *stone beads. 11, Phase I, 9, 21 and 24-26, Phase II, 2, 3, 8, 12, 13, 15-17, 20, 22 and 23, Phase III, and 1, 4-7, 10, 14, 18 and 19, surface;* B, *painted jar, Phase I.* *See pp. 17 and 18*



B



A

Daimabad: painted pottery. A. *4, 6 and 18. Phase I. 5 and 8, Phase II. 16. Phase III. and 1-3, 7, 9-15 and 17. surface;* B. *10 and 12. Phase I. 5 and 8. Phase II, 1, 14 and 20. Phase III. and 2-4, 6, 7, 9, 11, 13, 15-19 and 21. surface.* *See p. 17*

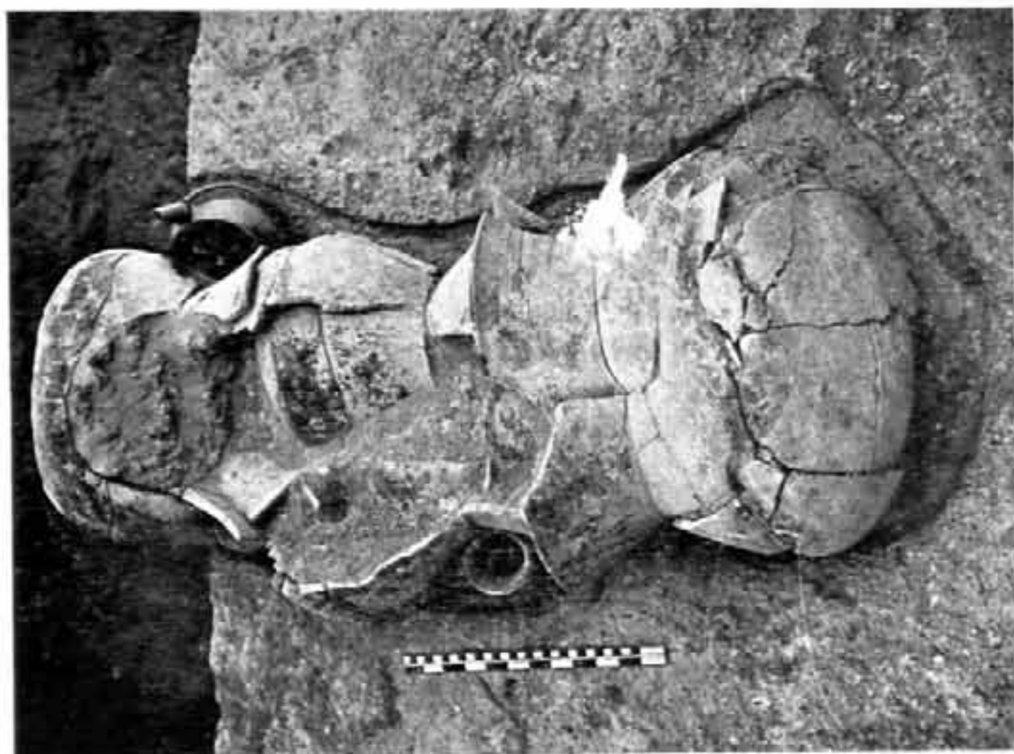


A



B

Daimabad: A. *extended burial, Phase II;* B. *skeleton lying on floor with post-holes all around, Phase III.* *See p. 18*

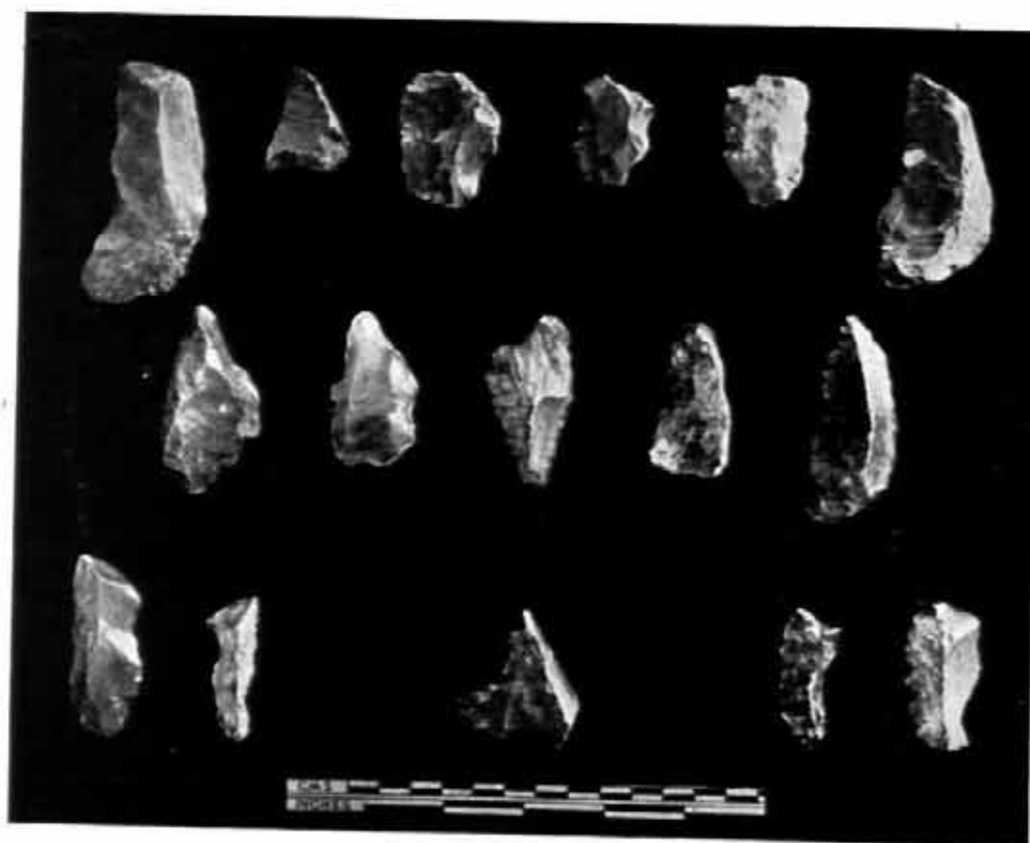


B

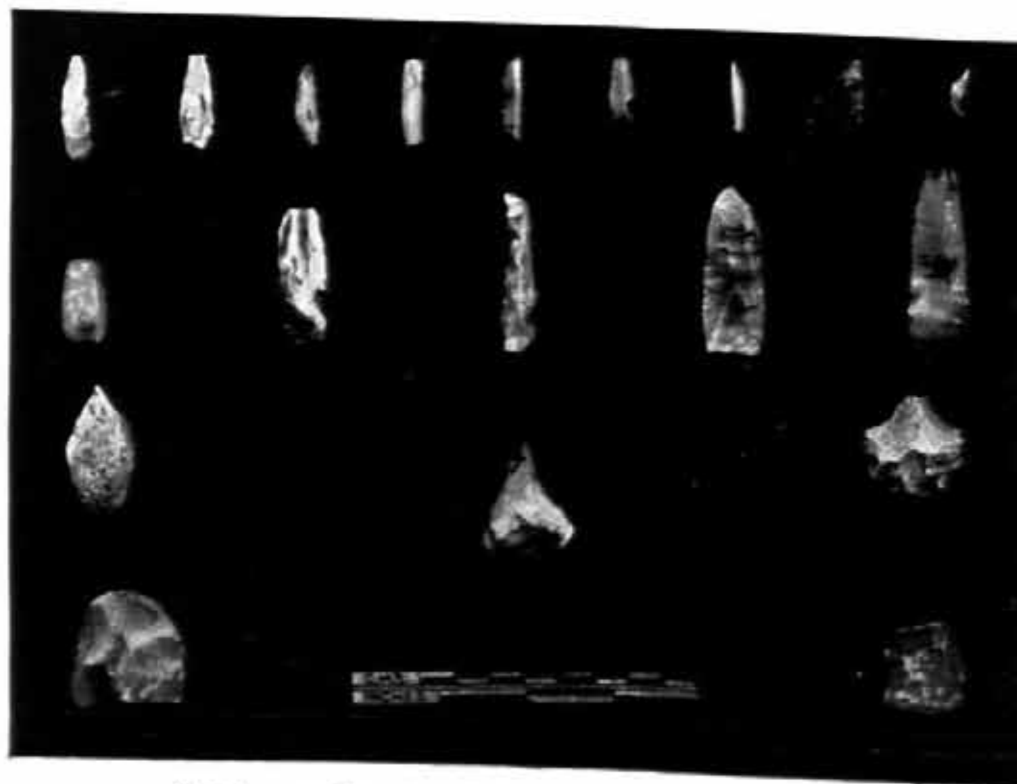


A

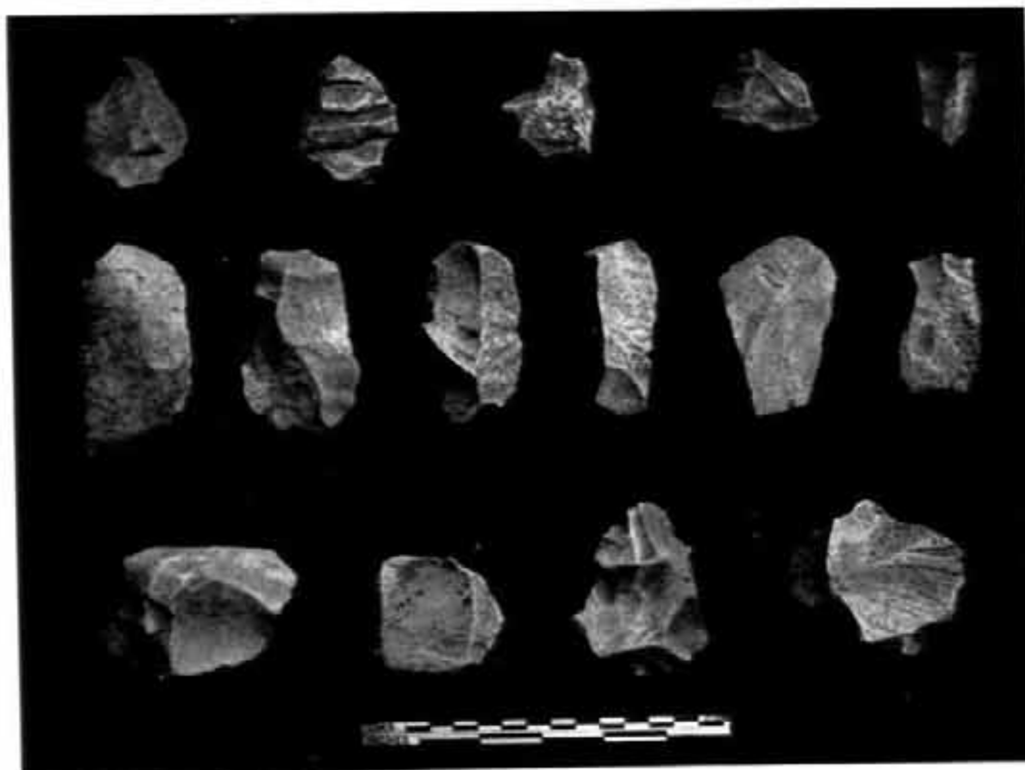
Daimabad: urn-burials, A. *Phase III, and* B. *Phase II.* *See p. 18*



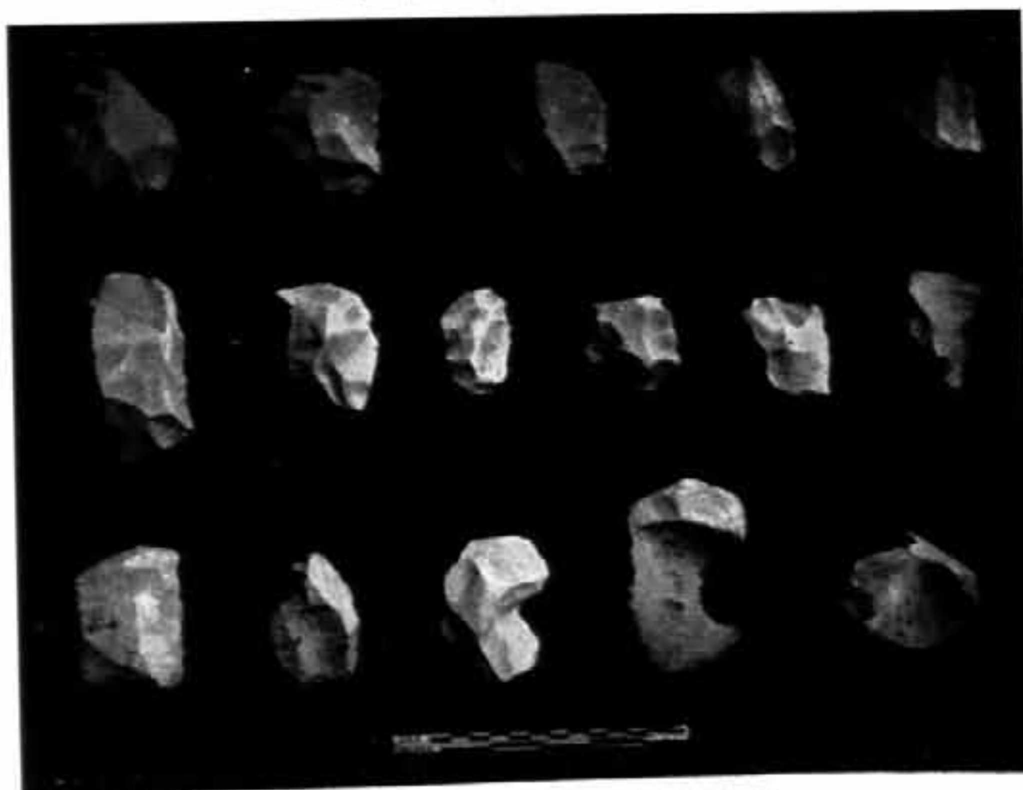
A. *Amlotha: tools of Series II.* *See p. 22*



B. *Bahurupa, Koparli and Pimplas: microliths.* *See p. 24*



A. *Vajpur: flakes of trap-rock.* *See p. 25*



B. *Kothali: flakes of trap-rock.* *See p. 25*

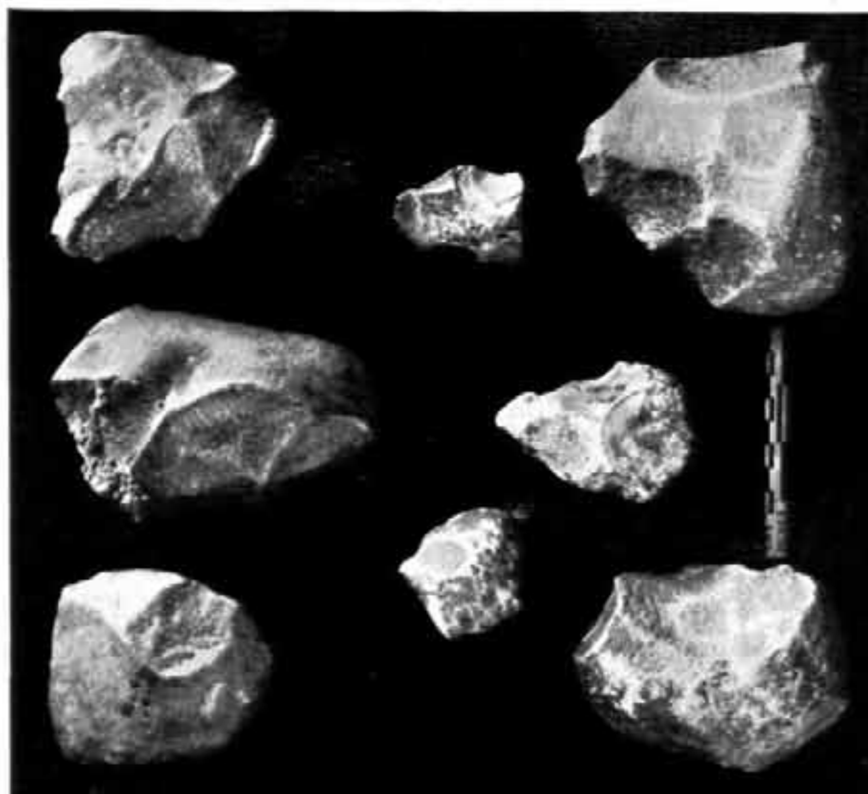


A



B

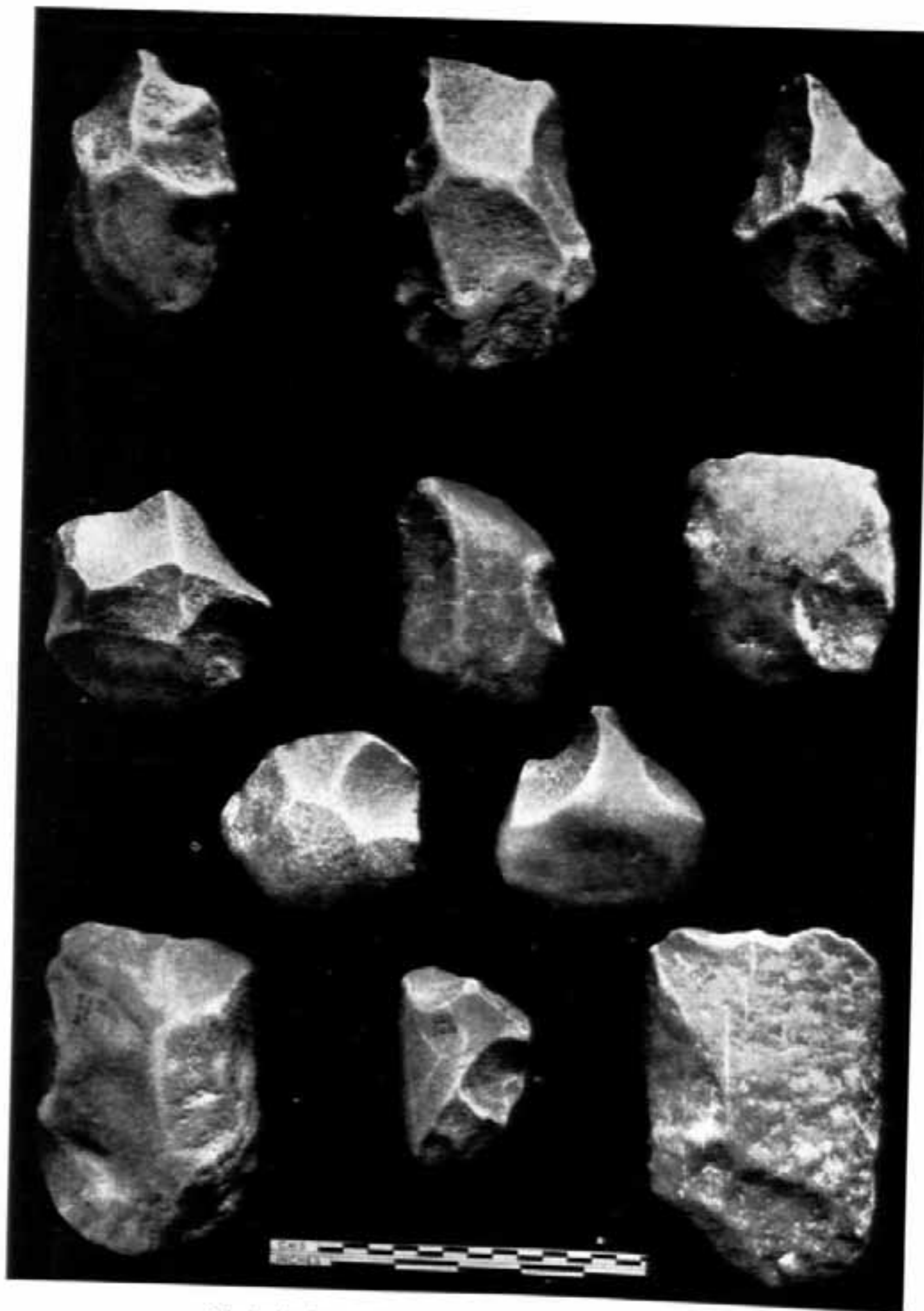
Lal-kot (Delhi): excavated structures. *See p. 25*



B. *Ghogra: palaeoliths. See p. 26*



A. *Rehli: palaeoliths. See p. 26*



Ghaisabad and Tardehi: palaeoliths. *See p. 26*



A



B

Sitakhardi: paintings in rock-shelters. *See p. 27*



A



B

Navdatoli: A. *floors of different Phases;* B. *pit and post-holes. Phase I.* *See p. 30*



A



B

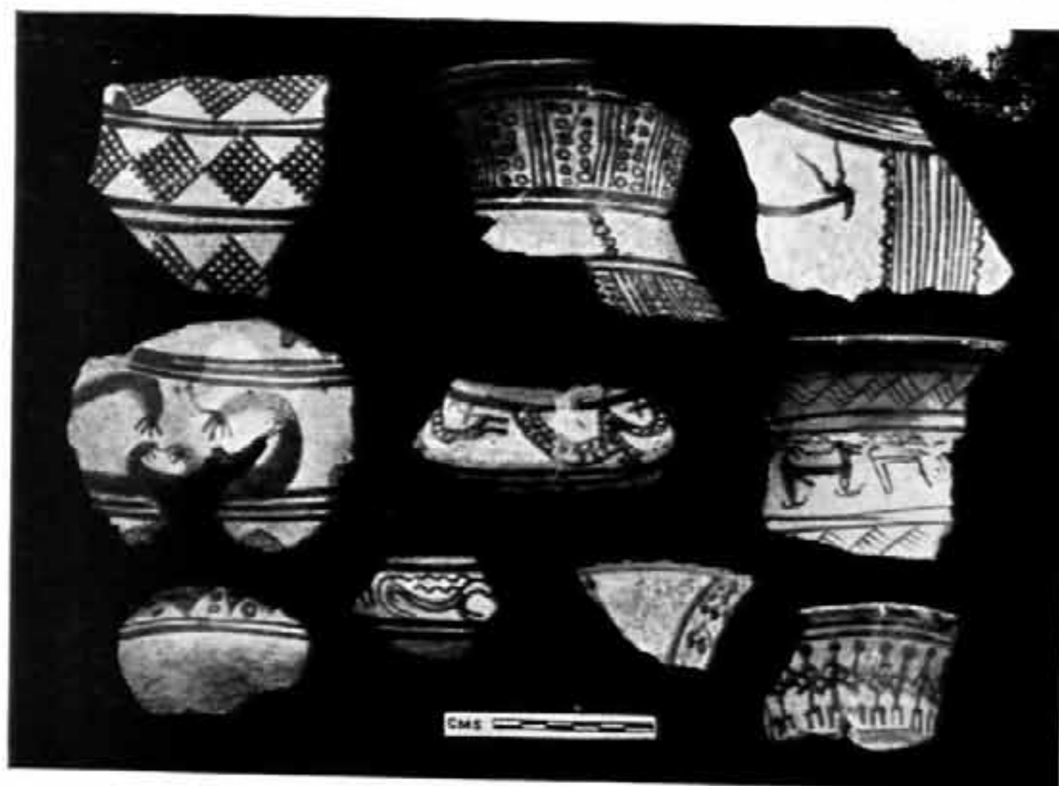


C

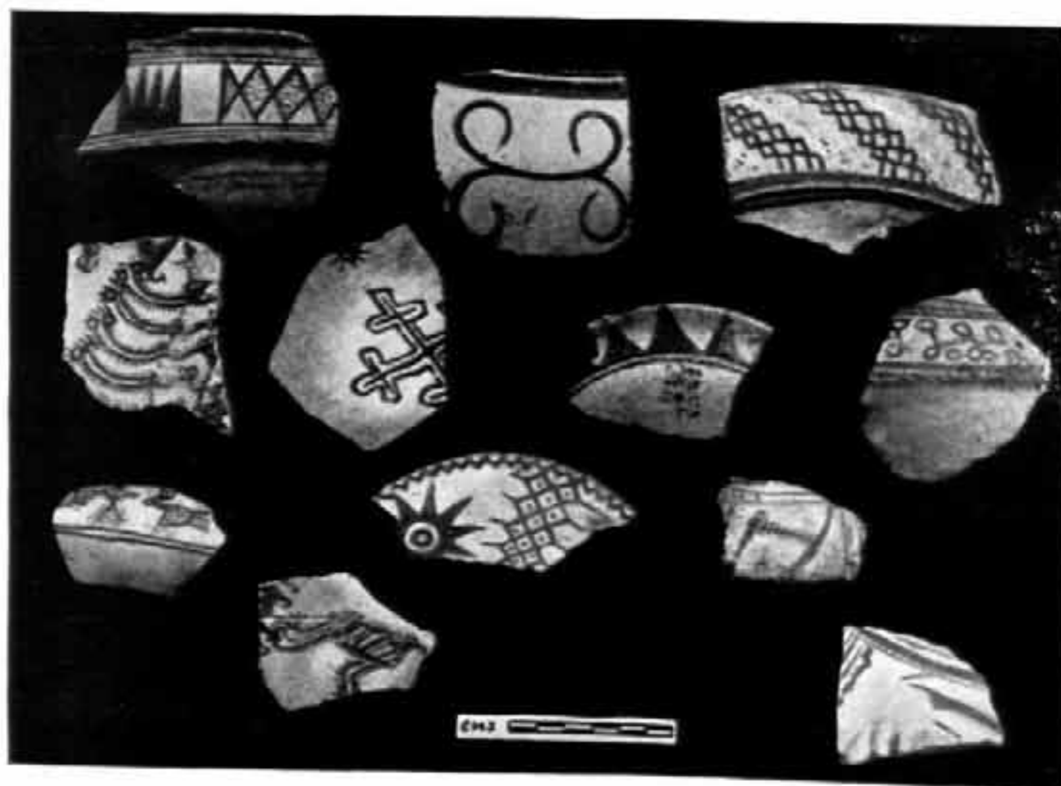


D

Navdatoli: Malwa Ware. Phase I. *See pp. 30 and 31*



A



B

Navdatoli: A, *white-slipped ware. Phase I;* B, *white-slipped ware and Malwa Ware.* *See p. 31*



A



B



C

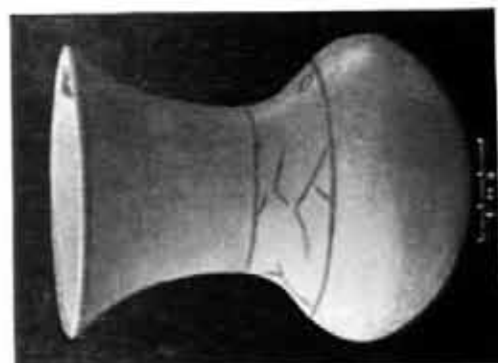


D

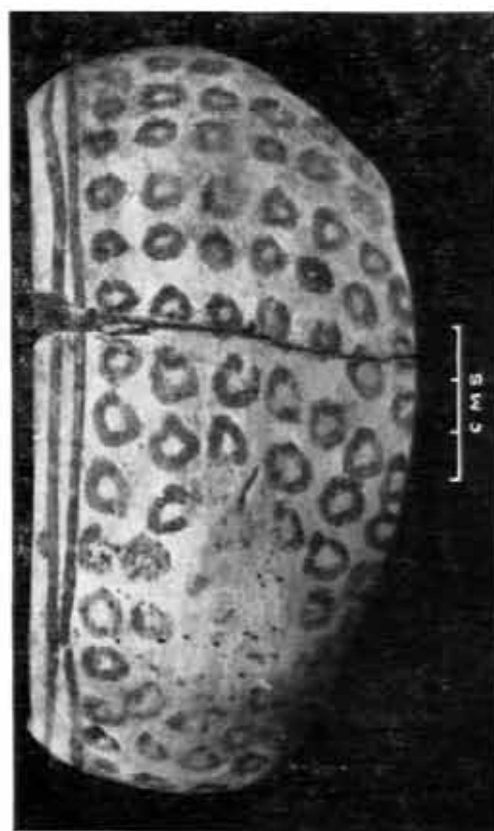
Navdatoli: Malwa Ware, A-C, *Phase III*, *and* D, *Phase II*. *See p. 31*



B



A



D



C

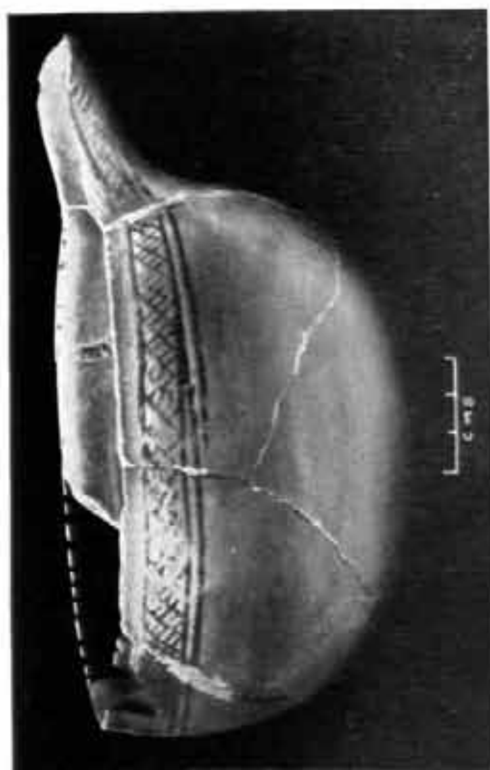
Navdatoli: A, *Malwa Ware. Phase III;* B-D, *white-slipped ware, respectively Phases I, I and II.* *See p. 31*



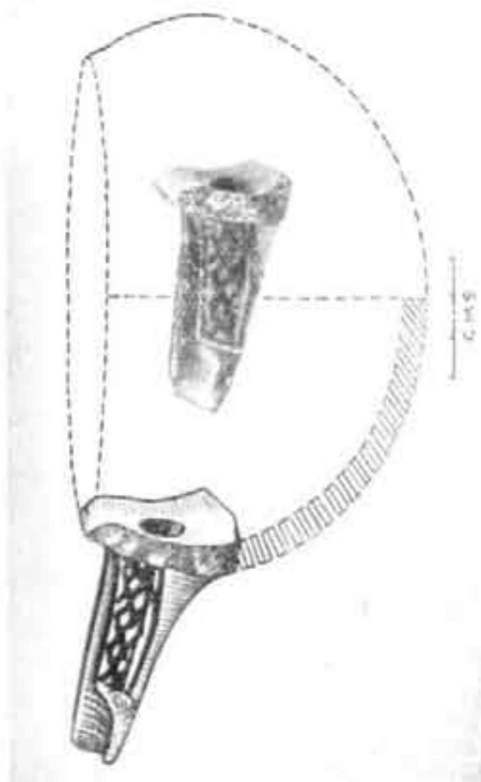
A



B



C

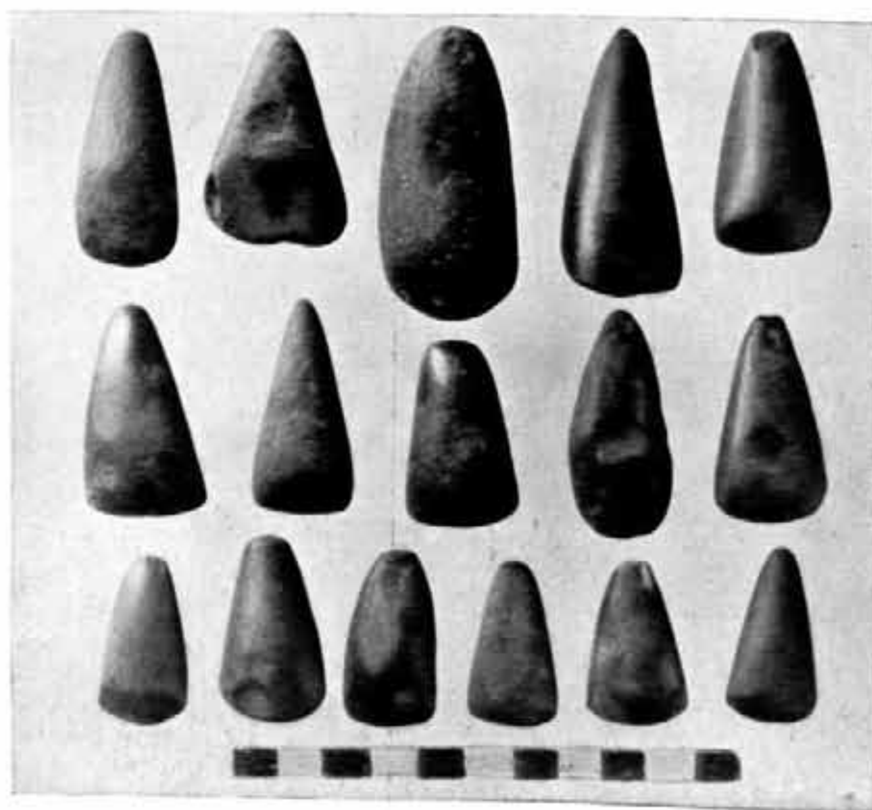


D

Navdatoli : A, *Malwa Ware, Phase I;* B, *Jorwe Ware, Phase III;* C and D, *Malwa Ware, Phase III.* *See p. 31*



A



B

T. Narasipur: A, *pit with megalithic pottery and bones;* B, *polished stone axes, surface.* *See p. 33*



Ratnagiri: Monastery 1. *See p. 33*



A



B

Ratnagiri: Monastery 1. A, *entrance, and* B, *later reconstructions with images. See pp. 33 and 35*



A



B

Ratnagiri: Monastery 1, A, Jambhala, Lokesvara, etc., and B, Yamuna, west of entrance. *See p. 34*



A



B



C

Ratnagiri: Monastery 1. A. *shrine with Buddha image (reconstructed);* B. *débris containing parts of Buddha image, and* C. *Vasudhara in a niche in later porch.* *See pp. 34 and 35*



A



B

Ratnagiri: Monastery 1, A, *early and late cells, and* B, *late walls in verandah.* *See pp. 34 and 35*



A



B



C



D

Ratnagiri: Buddha images. See pp. 35 and 36



A



B



C

Ratnagiri: A *and* B, *respectively stock of tiles and arched doorway of cell, Monastery 1;* C, *balustraded window, Monastery 2.* *See pp. 34 and 35*



A



B



C

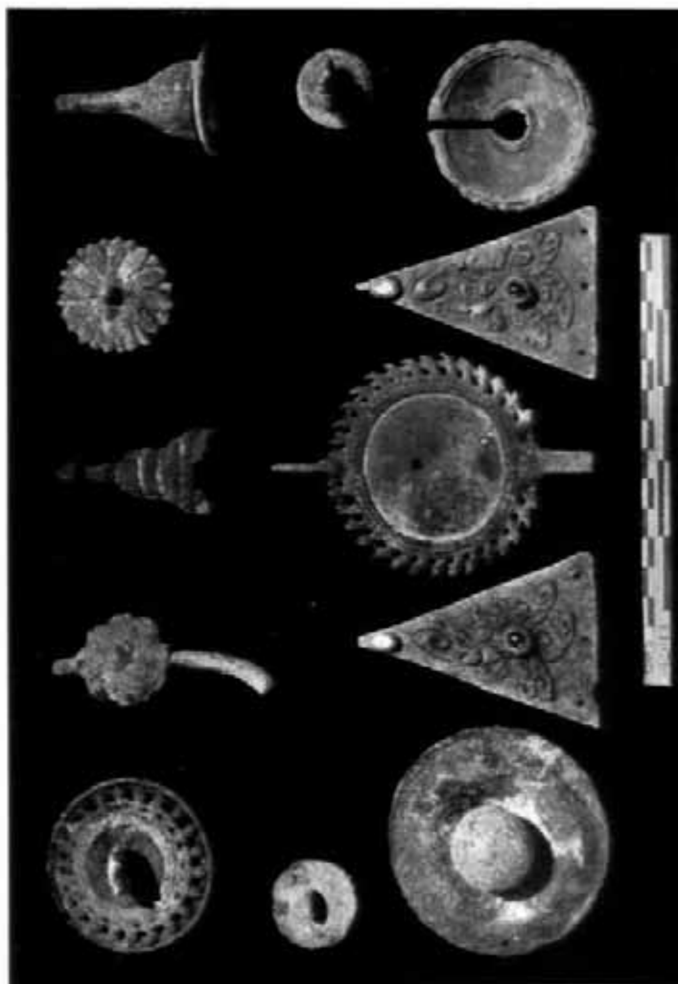
Ratnagiri: A. *shrine, Monastery 2;* B *and* C, *respectively Bodhisattva-Padmapani and Arya-Sarasvati.* *See pp. 35 and 36*



B

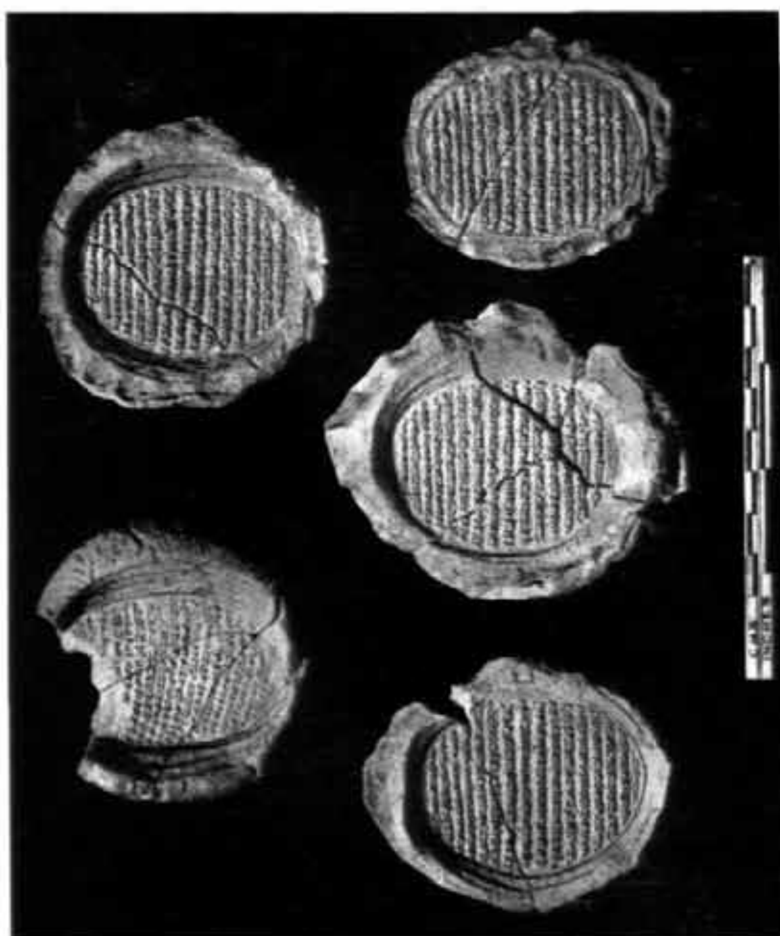


A



C

Ratnagiri: bronze images and other objects. *See p. 35*

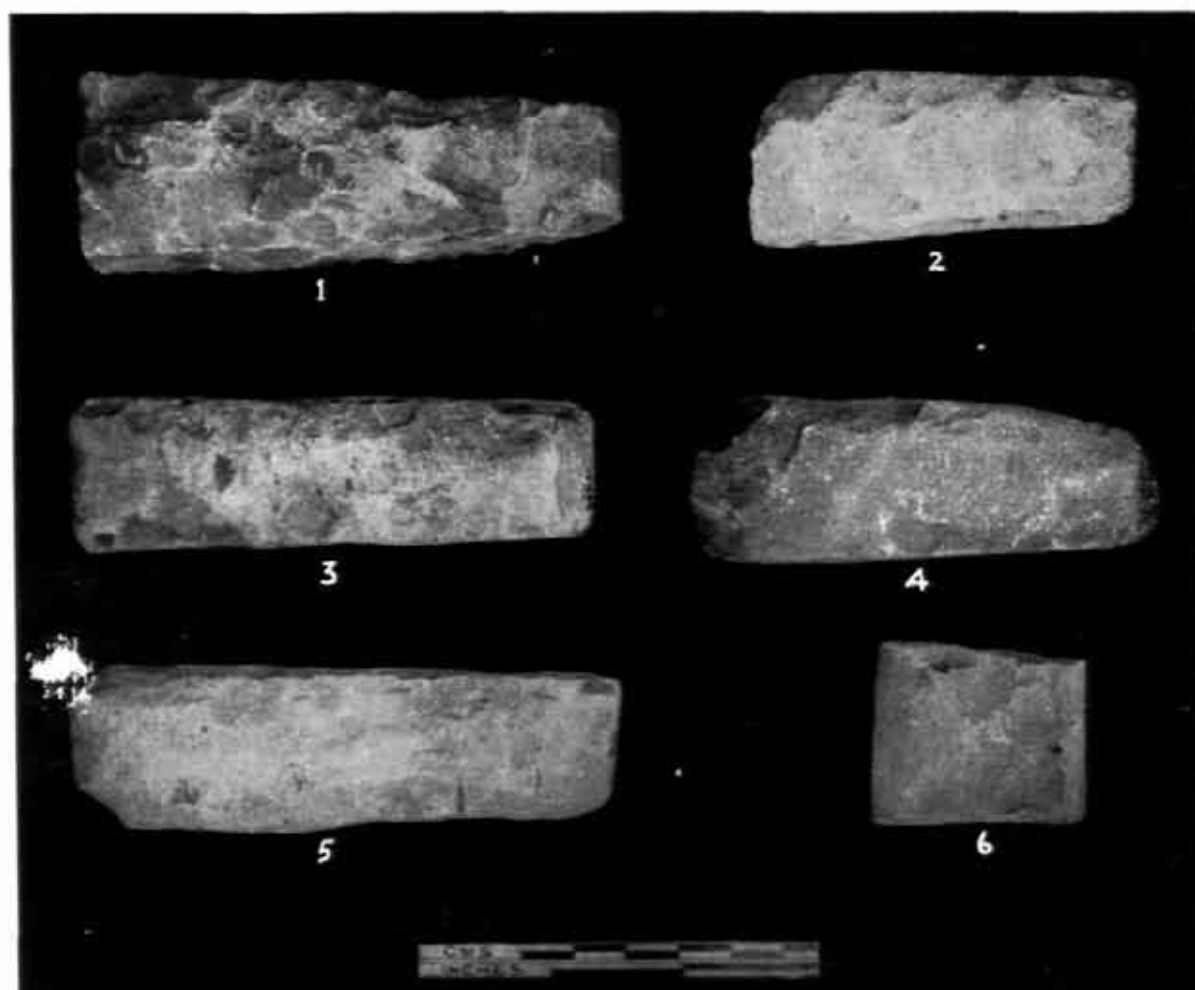


B

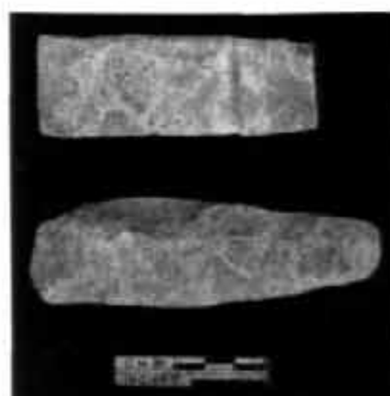


A

Ratnagiri: terracotta sealings and plaques. *See p. 36*



A. *Neolithic implements. Harichandanpur: 1 and 3; Sardapur: 2 and 4-6.* *See p. 36*



B. *Kaniha: neolithic implement.* *See p. 36*



C. *Radiabindha: neolithic implement.* *See p. 38*

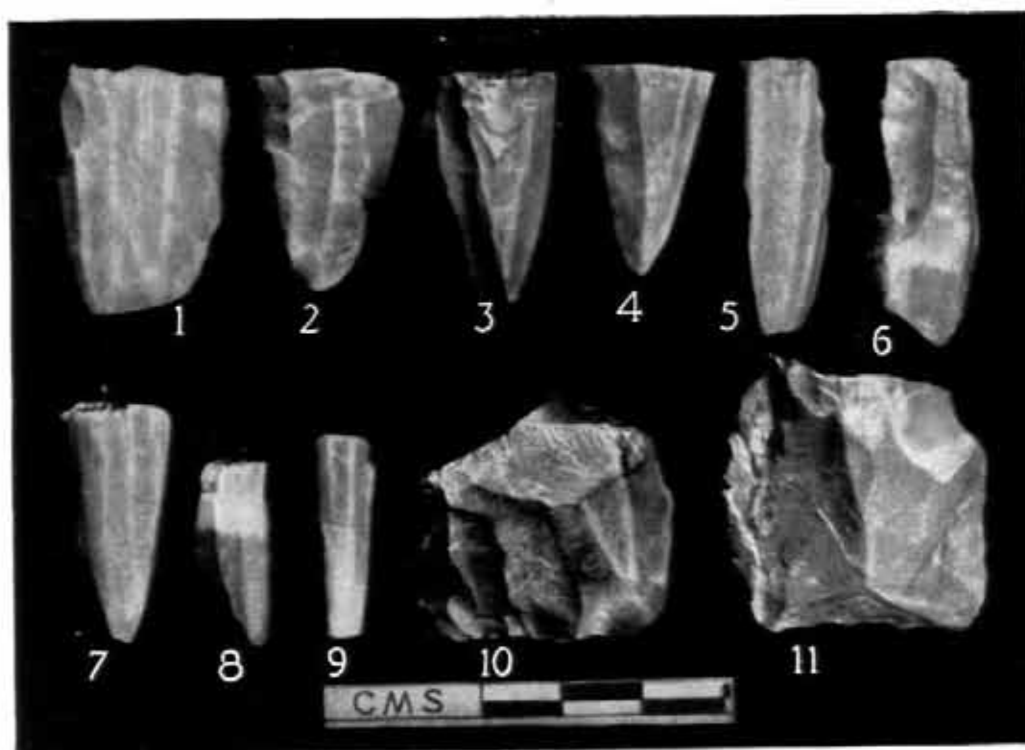


A

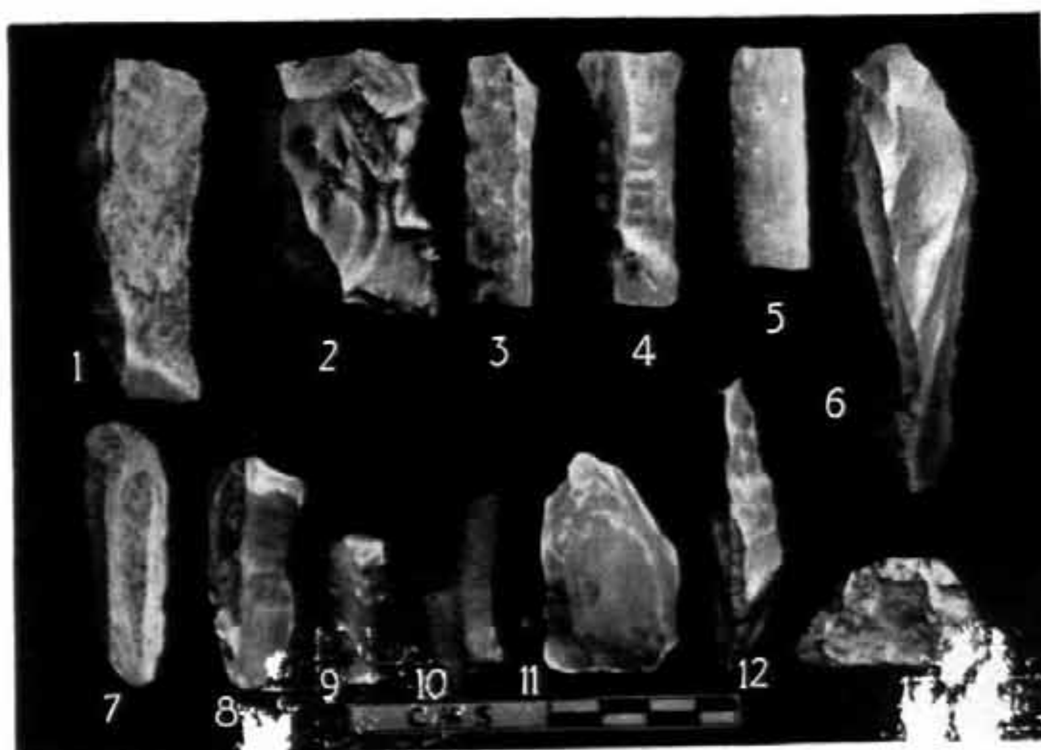


B

agiri: A, *apsidal structure, air-view;* B, *neolithic celt. See pp. 38 and 40*



A. *Cores. Bharni: 1-5 and 9; Chosla, 6; Deopura, 8; Jalakakhera, 10; Lachhmipura, 11.* *See p. 45*



B. *Flakes and bl Bharni: 1, 3, 4, 6, 7 and 10-13; Chosla: 2; Lachhmipur, Khejri: 8; Sakarpura: 9.* *See p. 45*



A

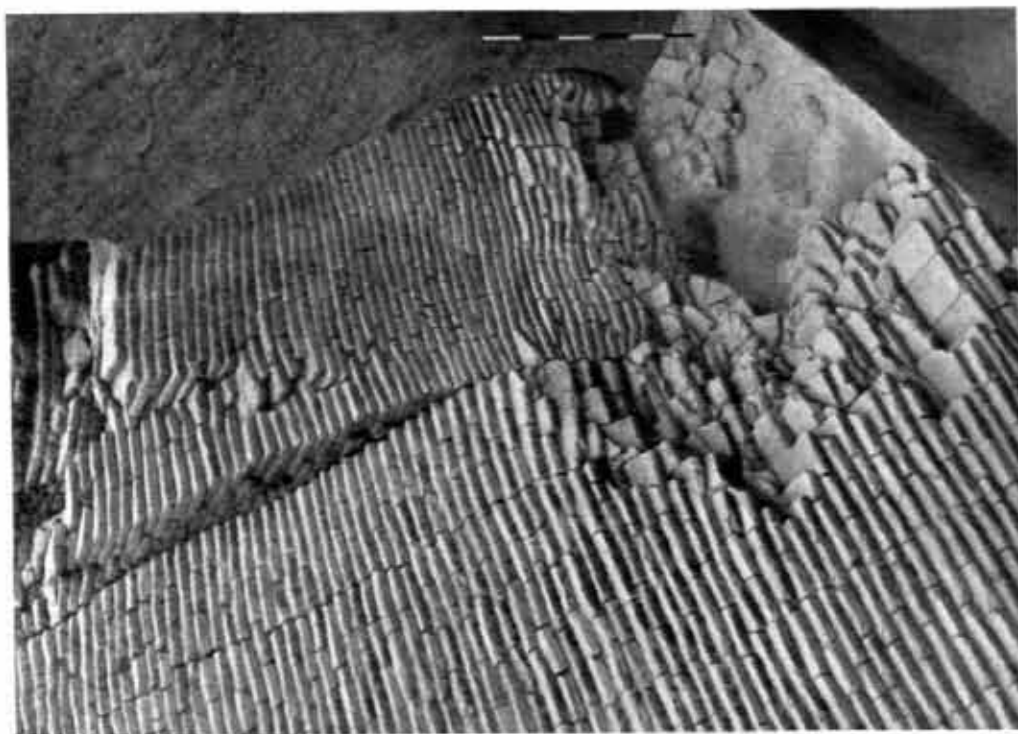


B

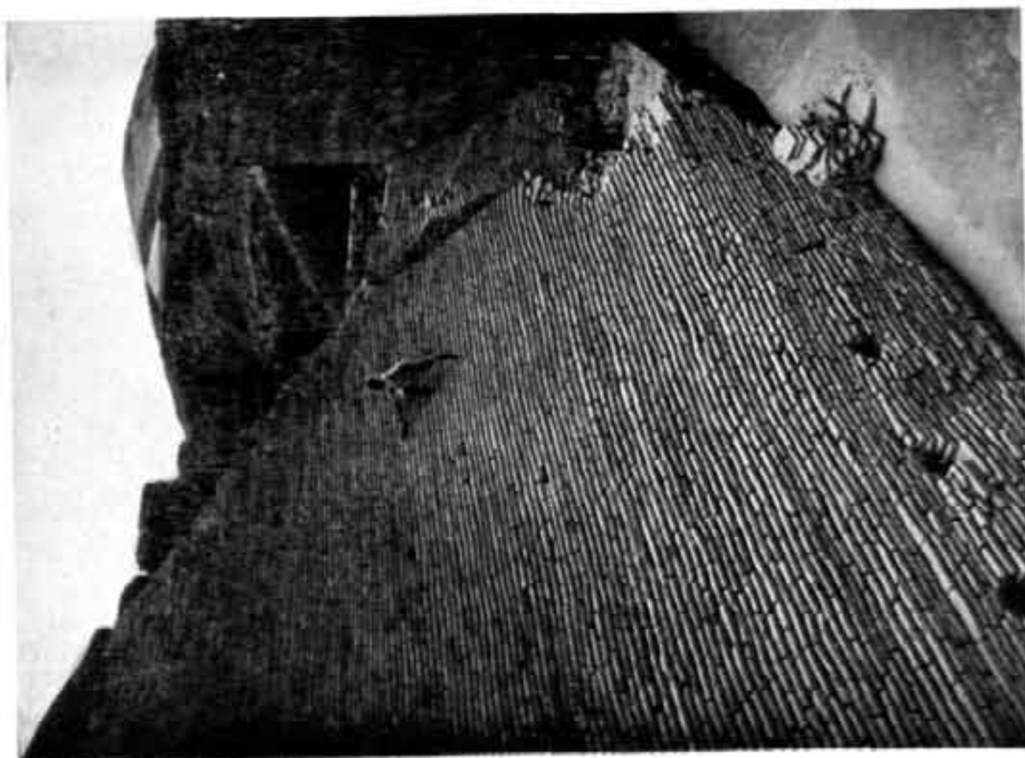


C

Chitor fort: Mahasati enclosure, A, shrines (Tower of Victory in background), B, structures, and C sati-stone. *See p. 46*



B



A

Kausambi: defence-revetment. Period I, with subsequent blocking of passage. See p. 46



A



B

Kausambi: defences, A, *repairs to revetment, steps and other structures, and* B, *drain.*
See p. 47



A

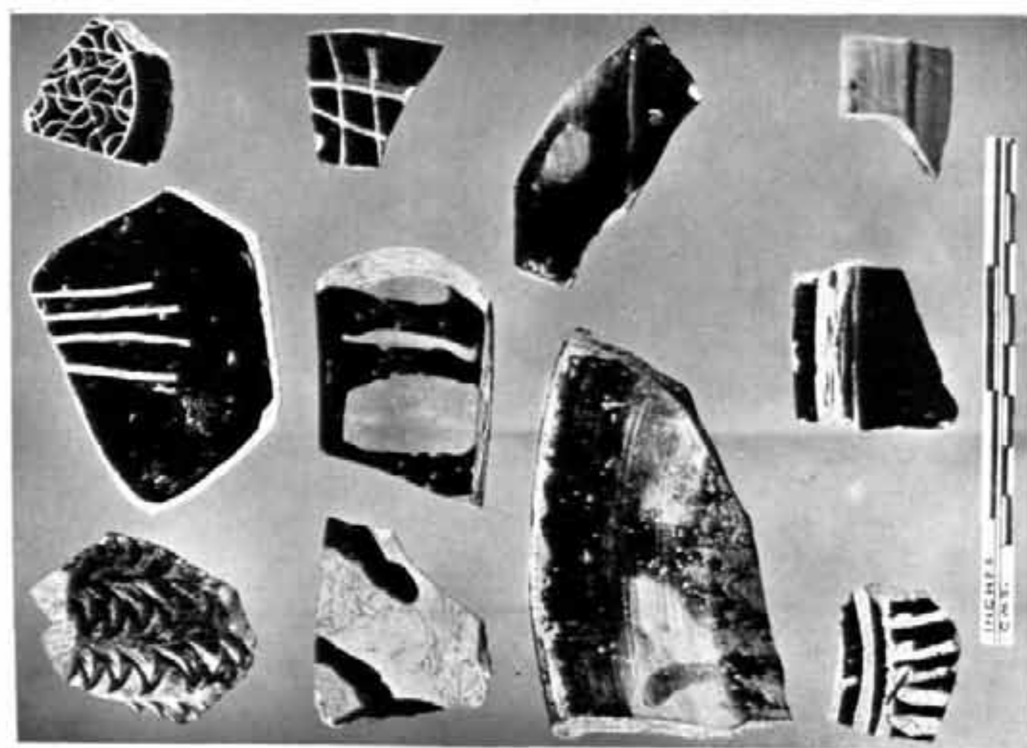


B

Kausambi: defences, A. section across .oat, and B. roads with watch-tower in backgro. See p. 47

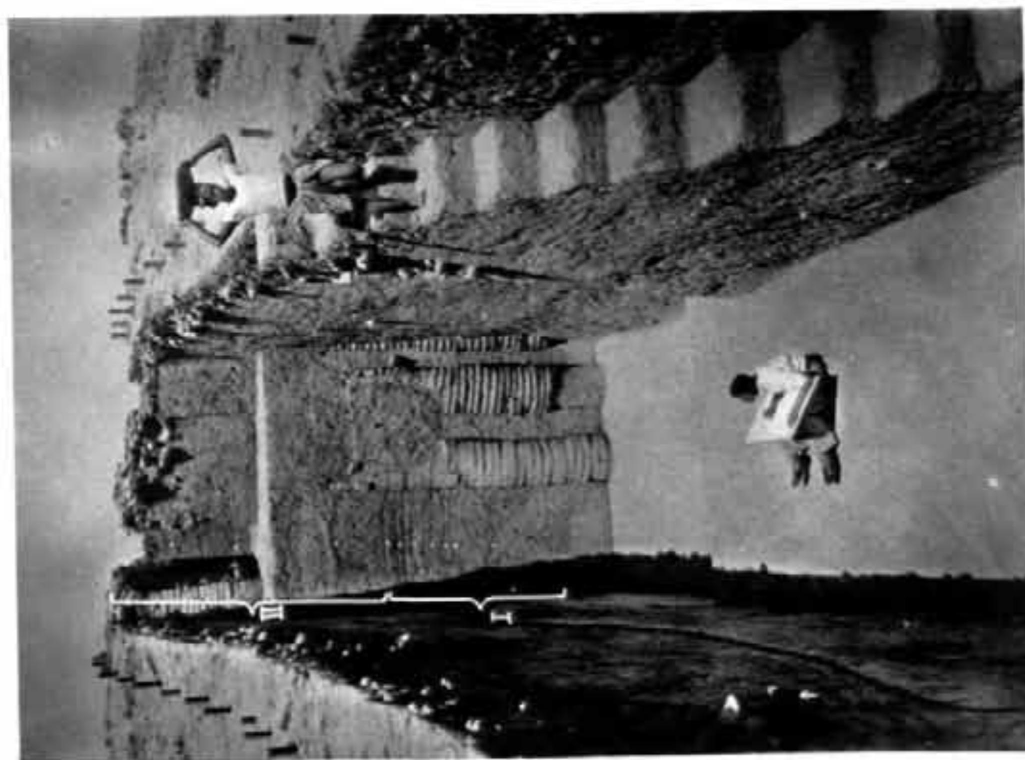


B



A

Kausambi: A, *incised and painted N. B. P. Ware;* B, *grey ware with black-painted designs.* *See p. 47*

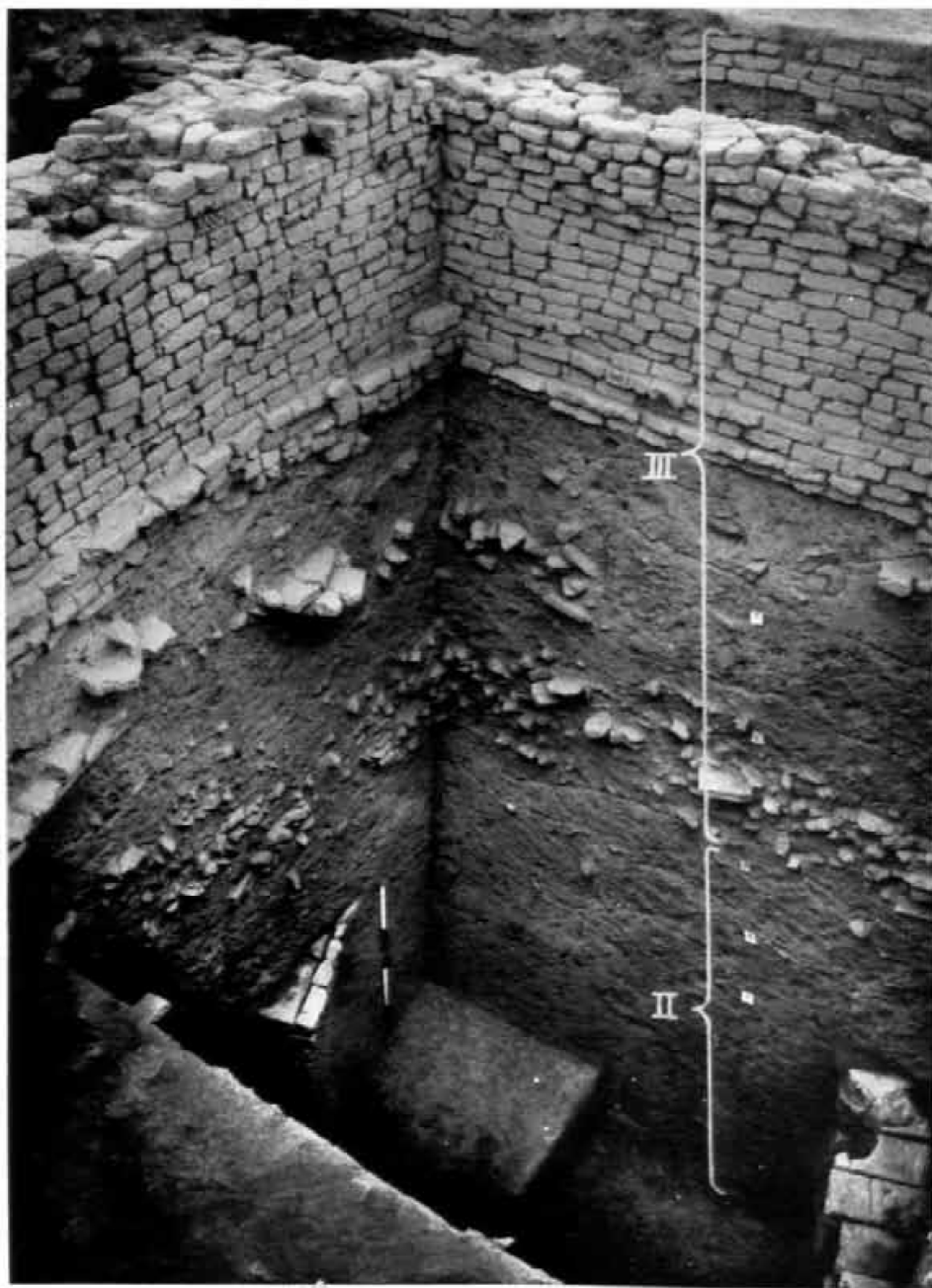


A



B

Sravasti: cutting across the defences, A, *showing deposits of Period I (pre-defence) and Period II, and* B, *showing, A-A, deposits of Period I, B-B and D-D, mud ramparts, and C and E, brick structures, Period II.* *See p. 47*



Ṣravasti: cutting in ho[illegible] *with deposits of Periods II and III.* *See p. 50*



B

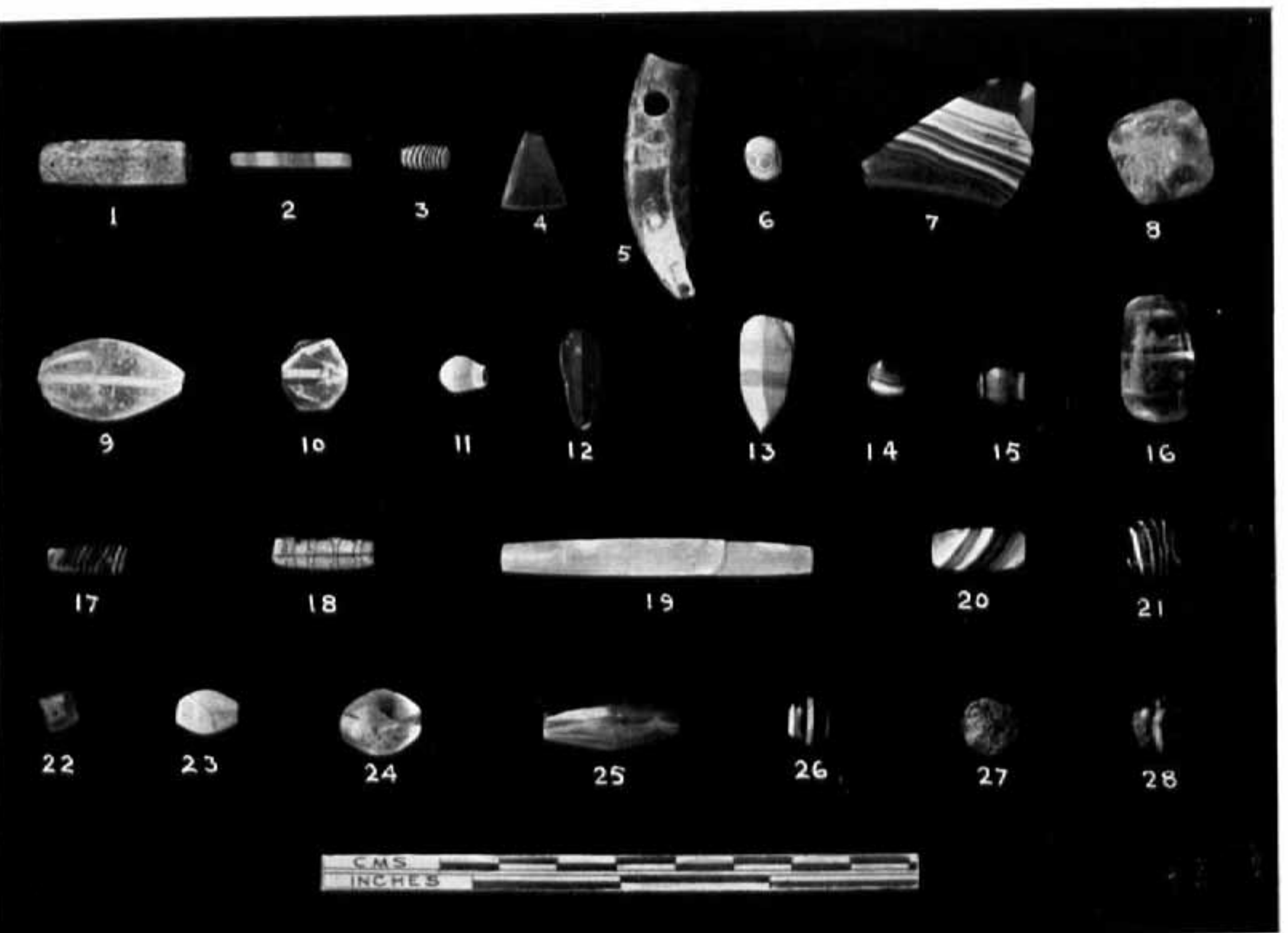


C



A

Sravasti: A, *painted black ware, Period I;* B, *terracotta sealing, Period II;* C, *Painted Grey Ware, Period I.* *See pp. 48 and 50*

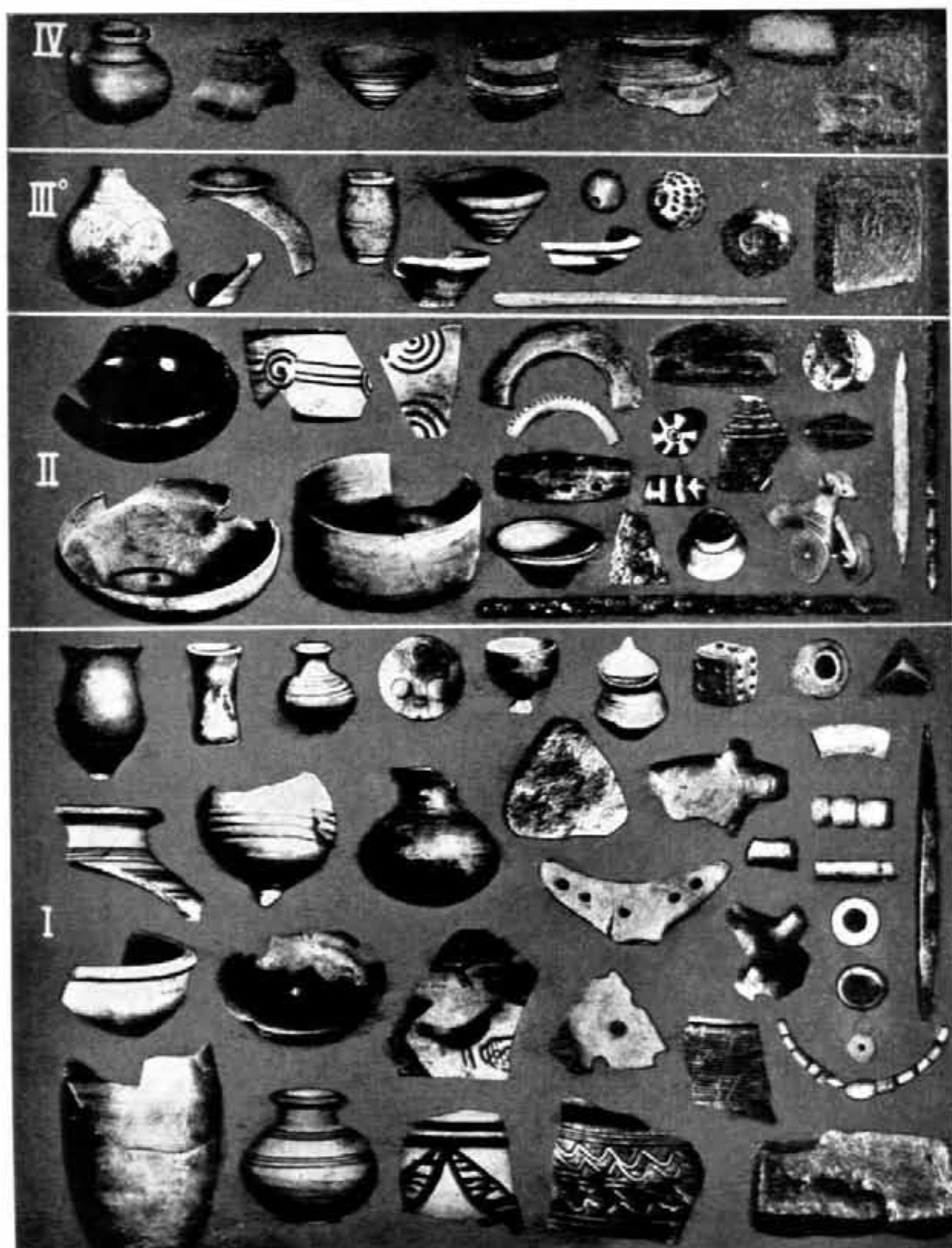


Sravasti: beads, 1-8, Period I. 9-21, Period II and 22-28, Period III. *See p. 50*



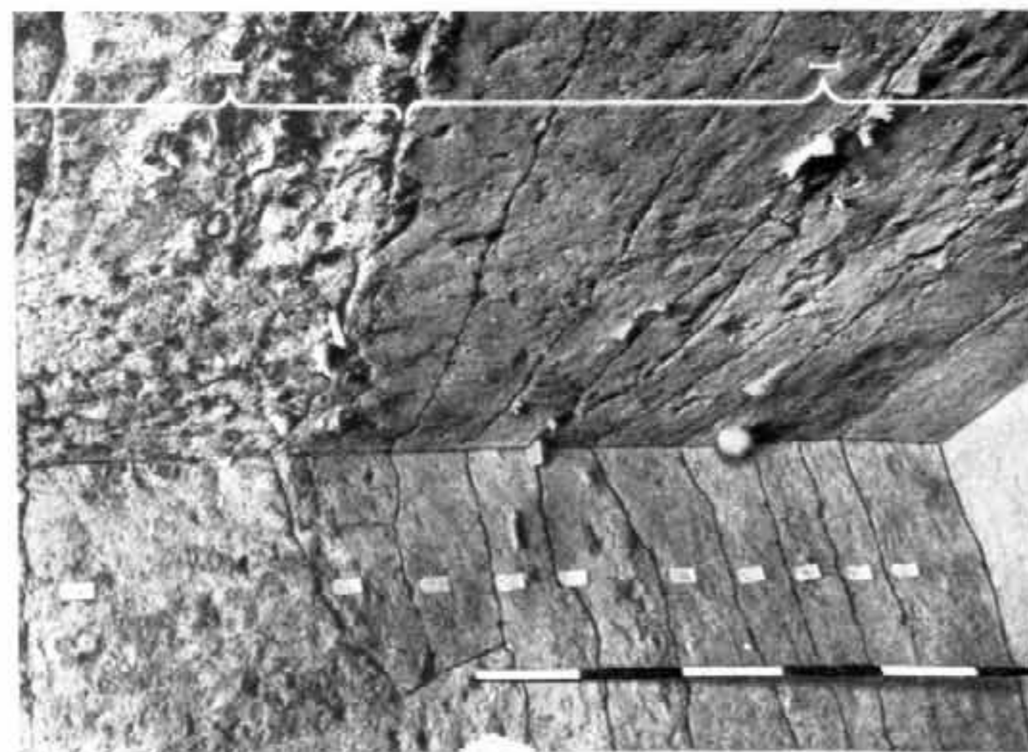
A B

Sravasti: terracotta figurines, A, *Period II, and* B, *Period III.* *See p. 50*



Alamgirpur: sequence of cultures. *See p. 52*





A B

Alamgirpur: A, *deposits of Periods I and II;* B, *consolidated surface with mortar-holes (?), Period II.* *See p. 54*



Alamgirpur : Harappan painted pottery. *See p. 52*



A

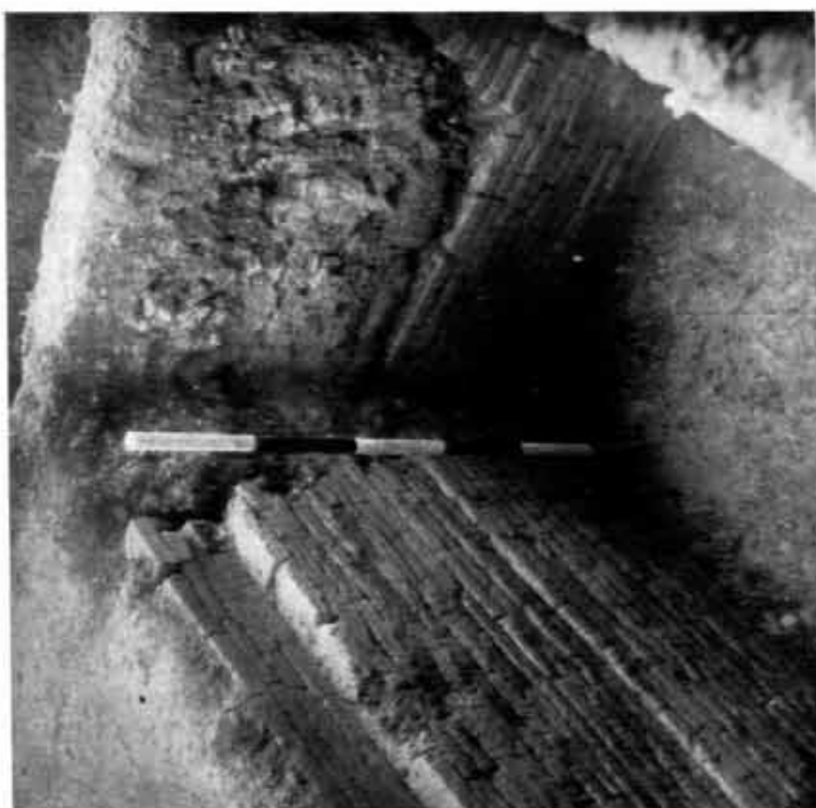


B



C

Alamgirpur: A, *Harappan script on pottery;* B. *broken vessels in situ;* C. *some of them reconstructed*
See p. 52



B



A

Chandraketugarh: A, *southern wall of temple;* B, *north-eastern corner of vestibule.* *See p. 55*



B



A

Chandraketugarh: A, *terracotta figurine, ht.* 3¼ *in., Period I;* B, *terracotta moulds, scale* 1/1. *Period II.* *See p.* 56

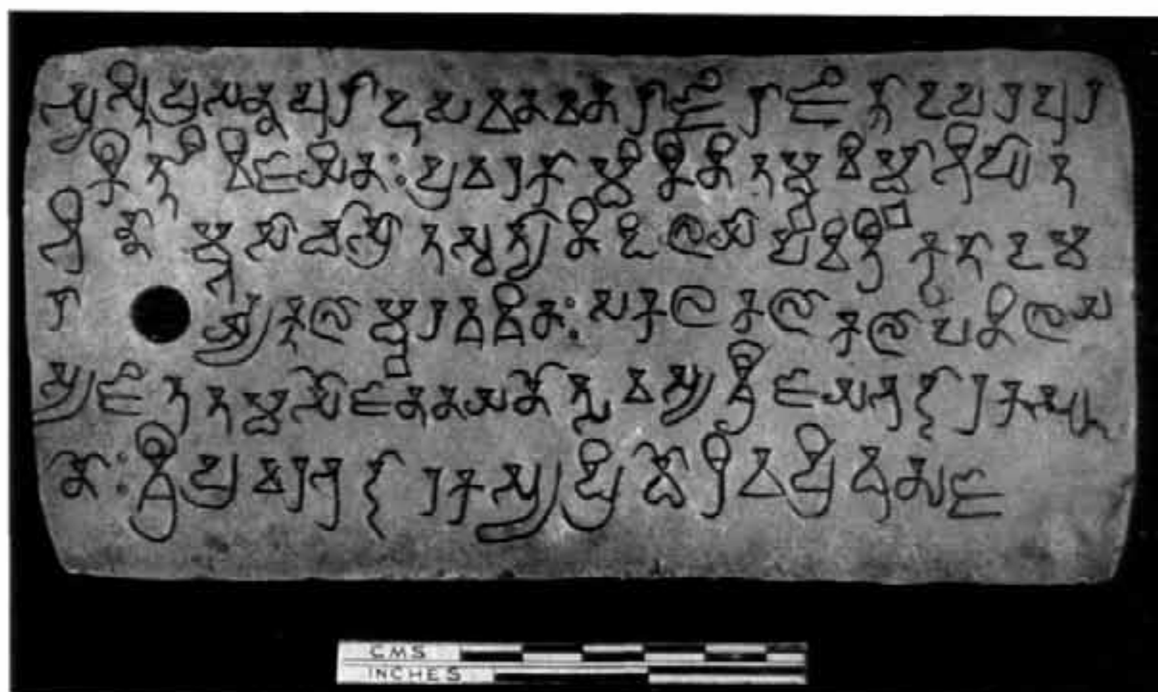


A

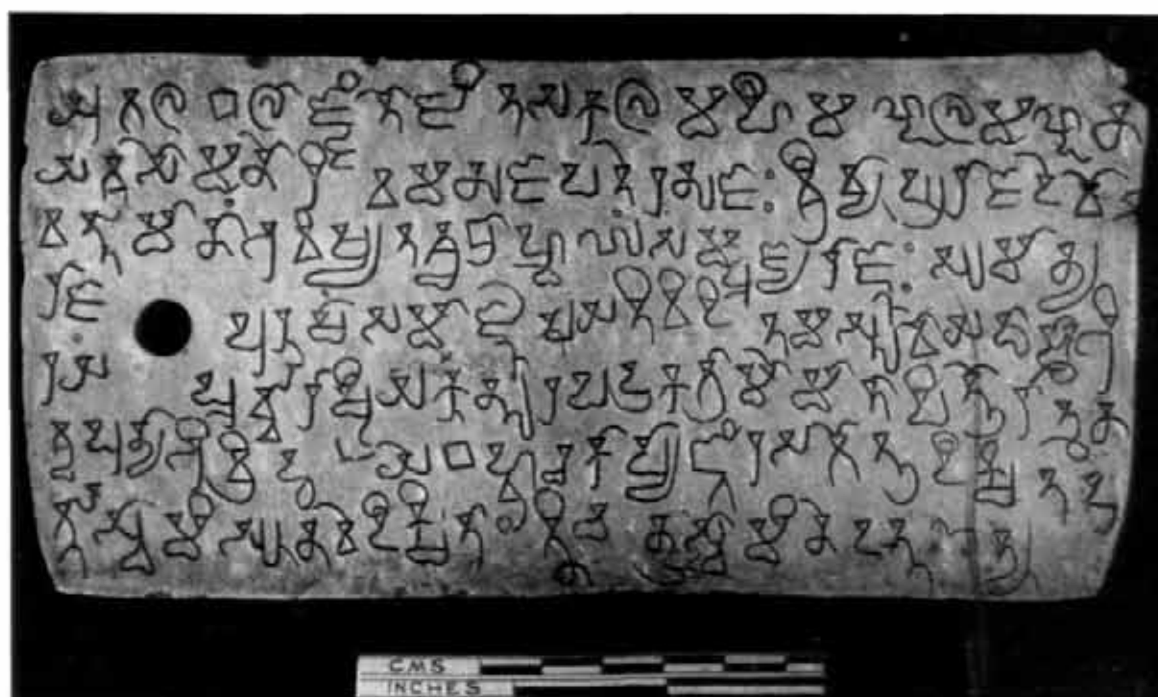


B

Maithani: pillar-inscription of Kakatiya Ganapati. *See p. 58*

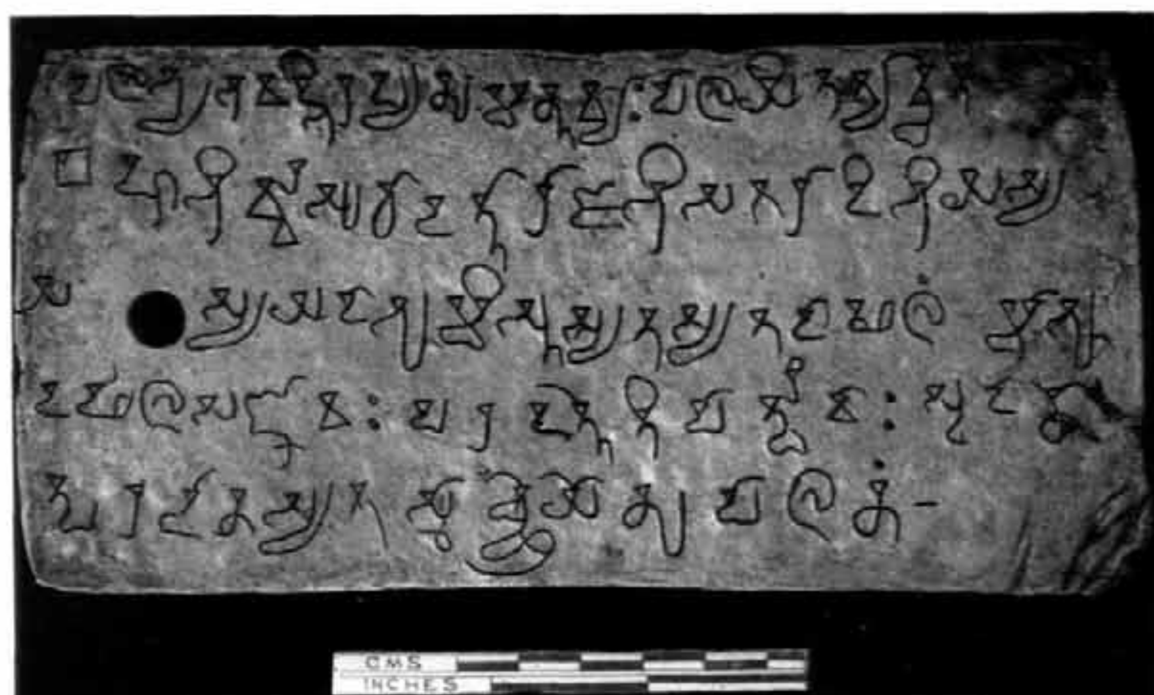


A

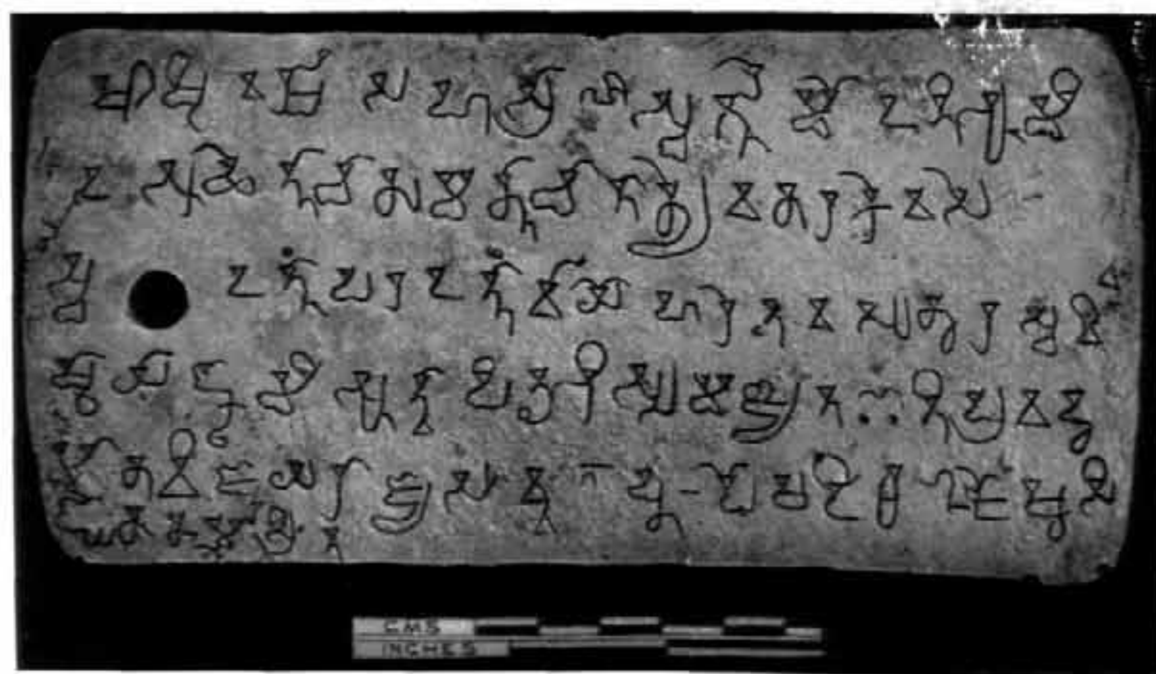


B

Mallar: copper-plate inscription of Vyaghraraja. *See p. 60*



A



B

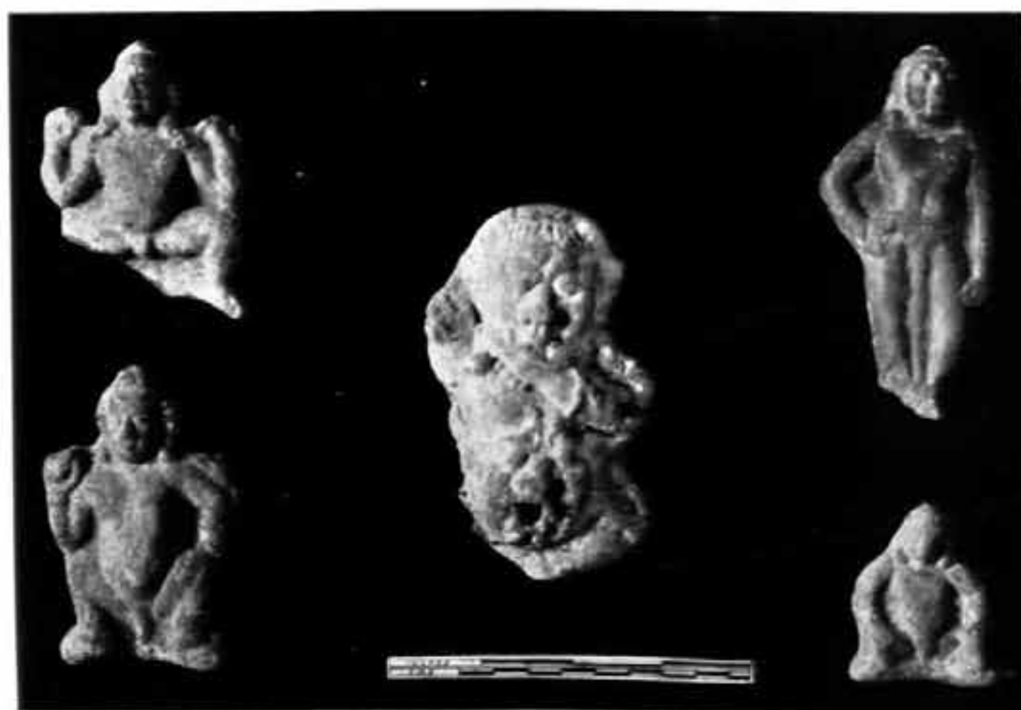
Mallar: copper-plate inscription of Vyaghraraja. *See p. 60*



Chitorgarh: fragmentary inscription. *See p. 63*



A. *Khambhalida: Buddhist cave.* *See p. 70*



B. *Junagarh: terracotta figurines.* *See p. 70*



A



B

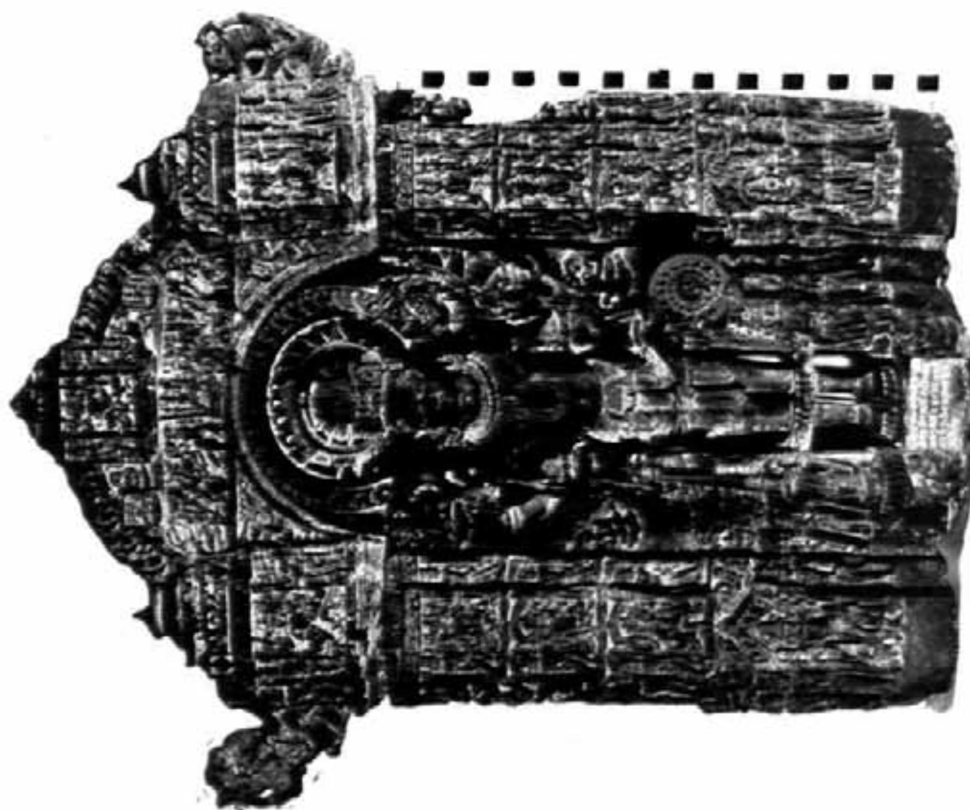


C

Junagarh: A, *terracotta figurines;* B, *lead coin;* C, *clay bullae.* *See p. 70*



B. *Nandaur Khurd: Bodhisattva.* *See p. 72*



A. *Delhi: Vishnu.* *See p. 71*



A



B



C



D

A, B *and* C. *Parsora: respectively shrine, Trivikrama image and door-frame.* D. *Deogarh: Vishnu Govardhana-dhara.* *See pp. 71 and 75*



B. *Baijnath: Mahisha-mardini.* *See p. 75*



A. *Noh: sculptured panel.* *See p. 73*



A



C



B



D



E

Allahabad Museum: A, *terracotta head ht. 3 in., Jhusi. Baroda Museum:* B, *stone Varahi, ht. 2 ft. 1 in., District Banaskantha. Asutosh Museum, Calcutta:* C *and* D, *terracotta heads, hts. 10 and 5½ in., Panna;* E, *gilt Vajrayogini, ht. 2¼ in., Nepal.* *See pp. 76 and 77*



C



B



A



E



D

Asutosh Museum, Calcutta: terracotta figurines. A *and* D, *hts. 4 and 2¾ in., Chandraketugarh.* B, *ht. 3¼ in., Harinarayanpur, and* C *and* E, *hts. 2¾ and 2¾ in., Tamluk.* *See p. 77*



A



B

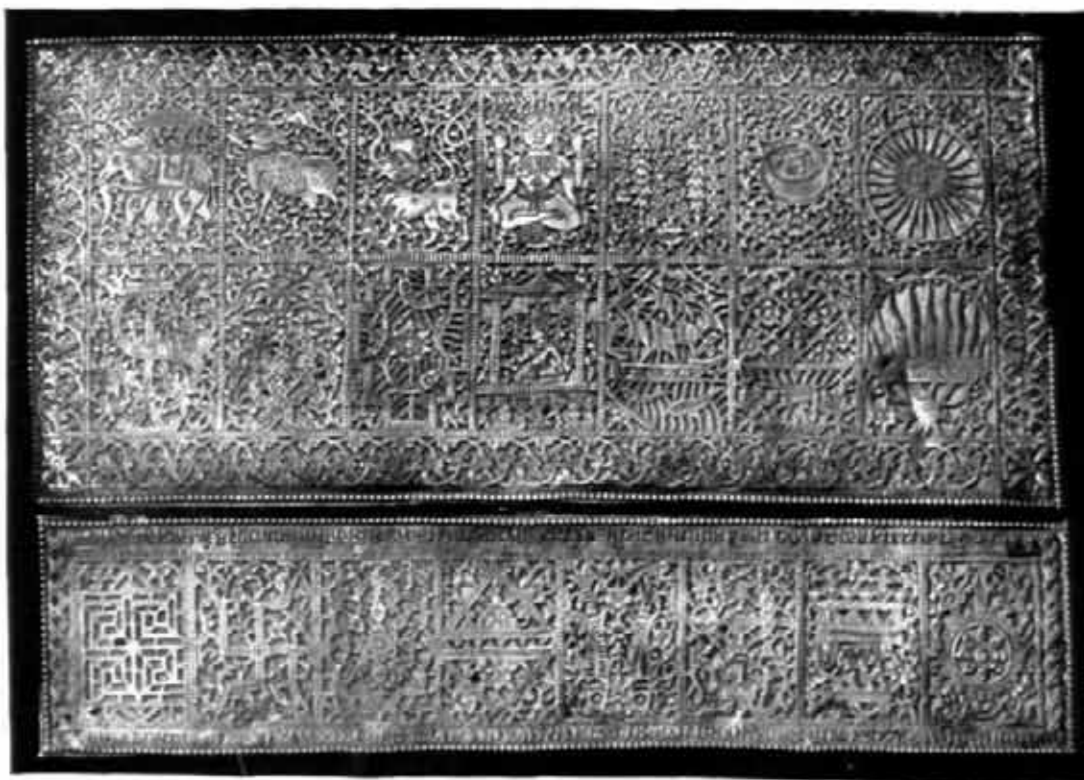


C

Asutosh Museum, Calcutta: A, *terracotta yakshi, ht. 7¼ in., Chandraketugarh;* B, *terracotta plaque, ht. 9¼ in., District Burdwan;* C, *inscribed lintel, length 2 ft. 6 in., Gaya.* *See p. 77*



A



B

Asutosh Museum, Calcutta: A, *painted box, length 11½ in., Udaipur;* B, *manuscript-cover in silver filigree-work, length 11½ in., Surat.* *See p. 77*



A. *Asutosh Museum, Calcutta: illuminated manuscript of the Devi-bhagavata, length 11¼ in., Nepal. See p. 77*



B. *Chandradhari Museum, Darbhanga: palm-leaf manuscripts, Mithila. See p. 78*



A



B



C

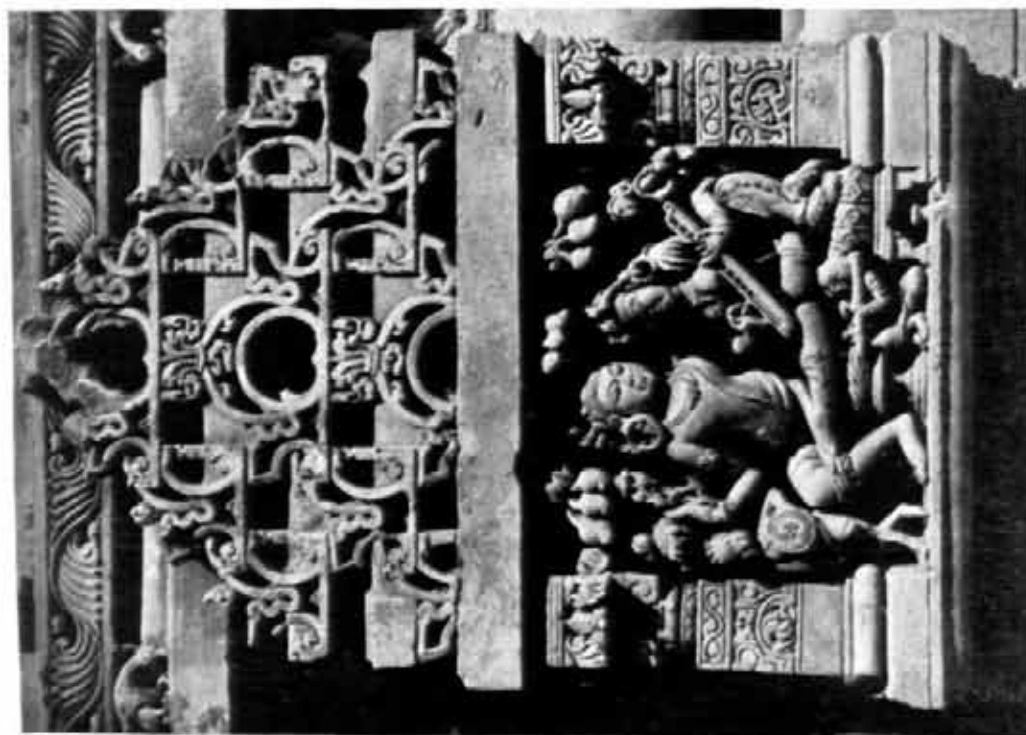
A. *Asutosh Museum, Calcutta: Radha and Krishna in metal, hts. respectively* $4\frac{3}{4}$ *in. and* $9\frac{1}{4}$ *in., Orissa.* **B** *and* C. *Chandradhari Museum, Darbhanga: Tibetan bronzes, ht. 1 ft. 4 in., each.* *See pp. 77 and 78*



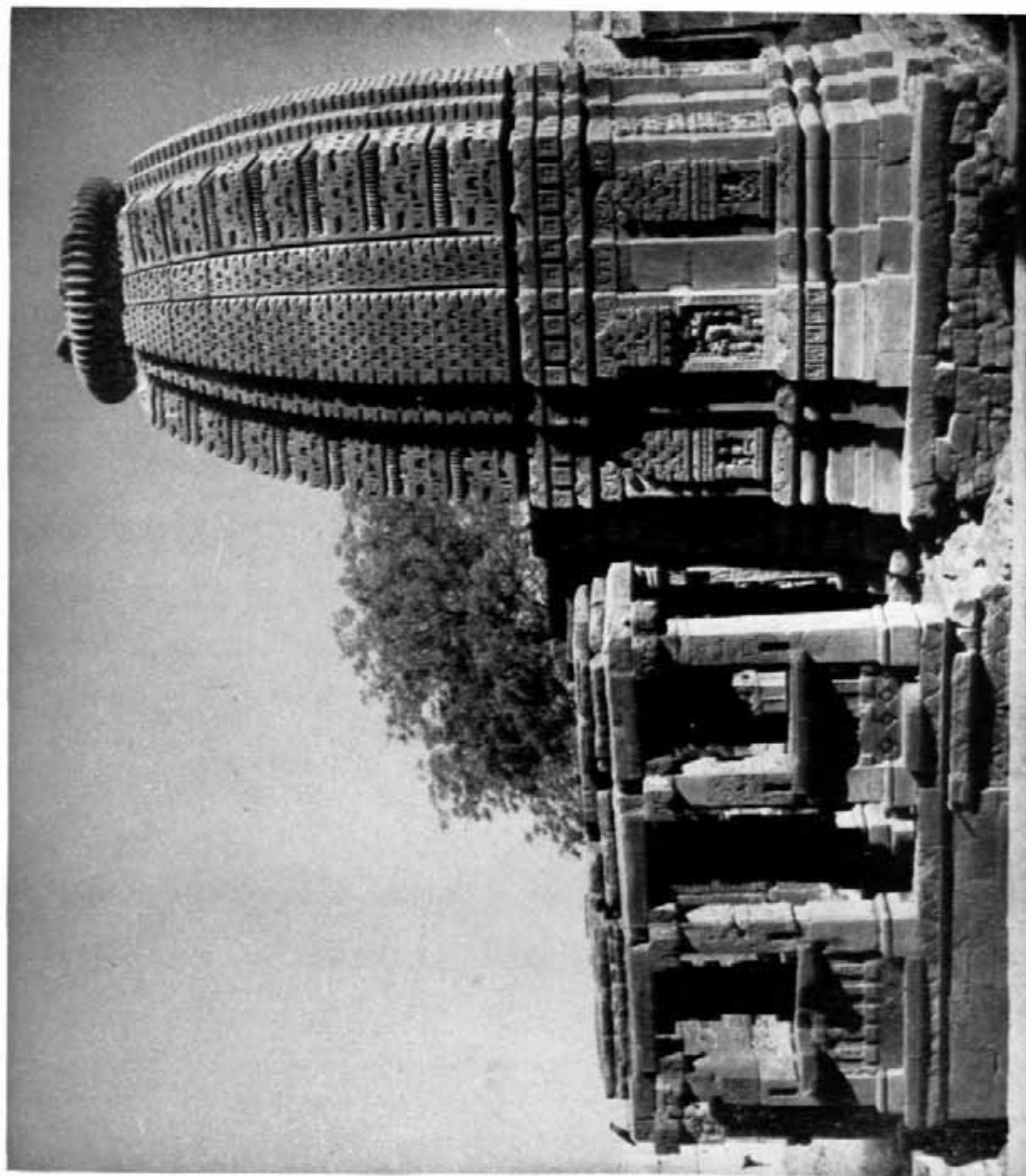
Indian Museum, Calcutta: show-case in Prehistoric Gallery. *See p. 78*



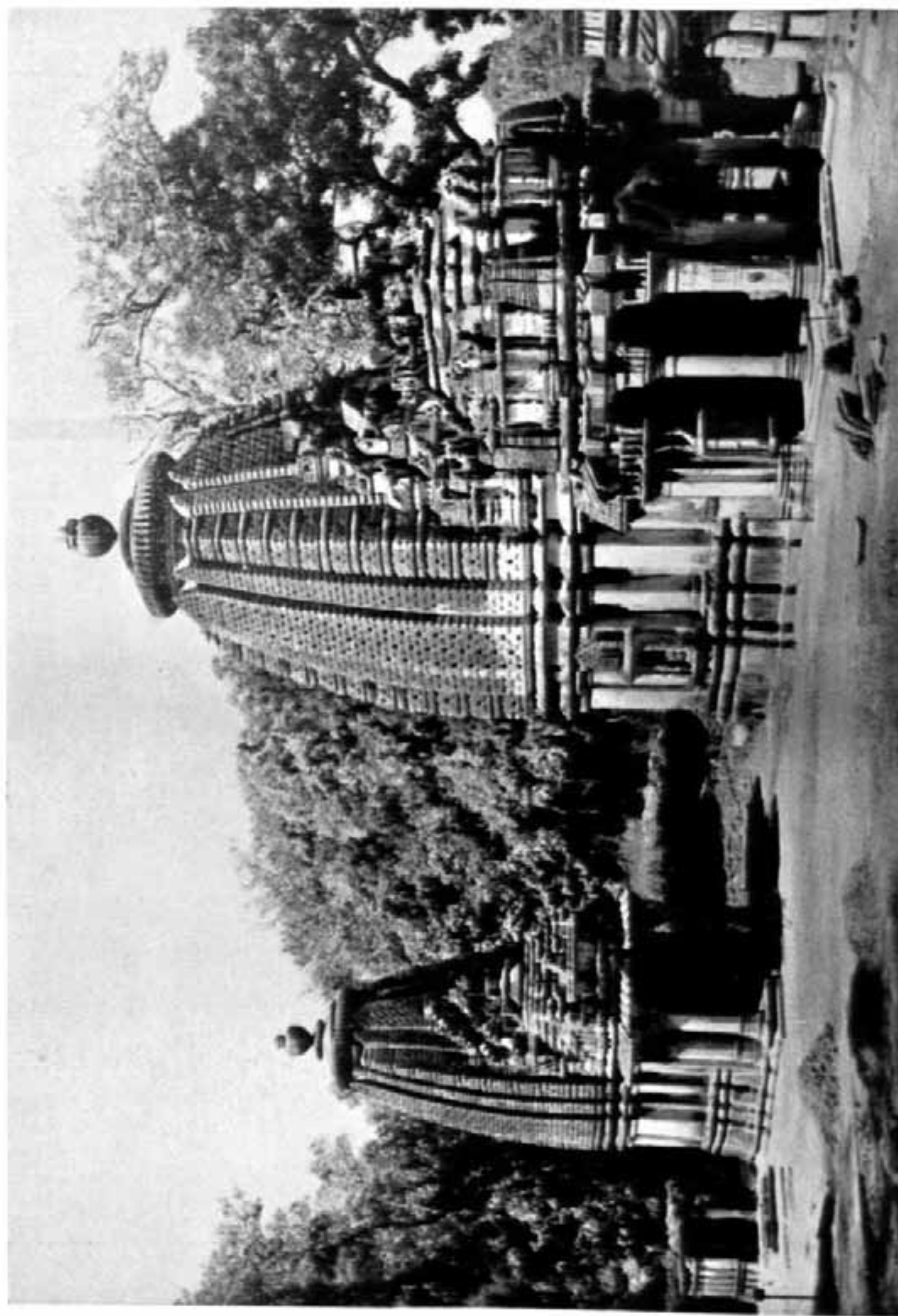
B. *Jagat: Amba-mata temple, sculptural decor.* See p. 81



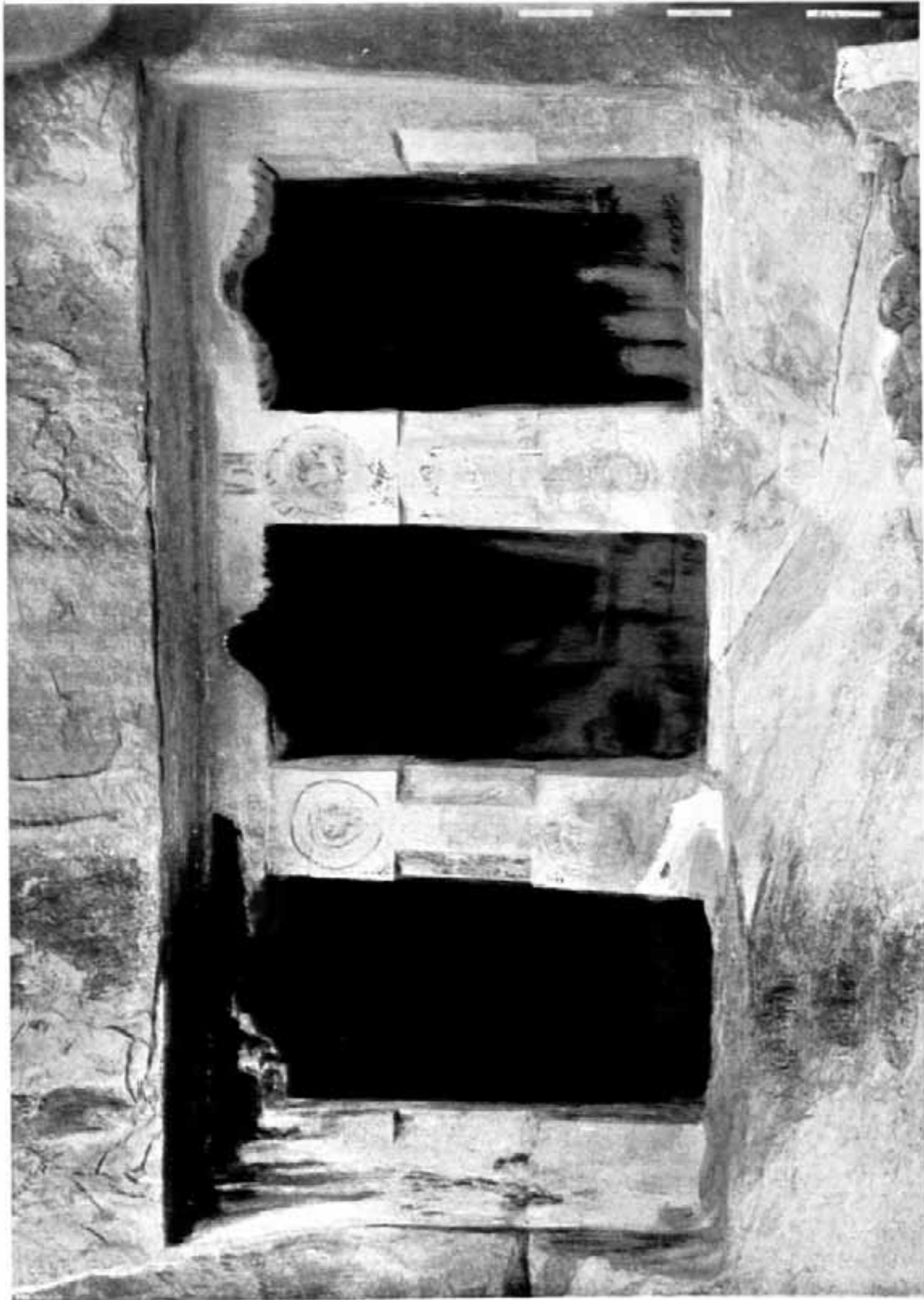
A. *Abaneri: Harshat-mata temple, sculptural decor.* See p. 81



Osia: Sun temple. *See p. 81*



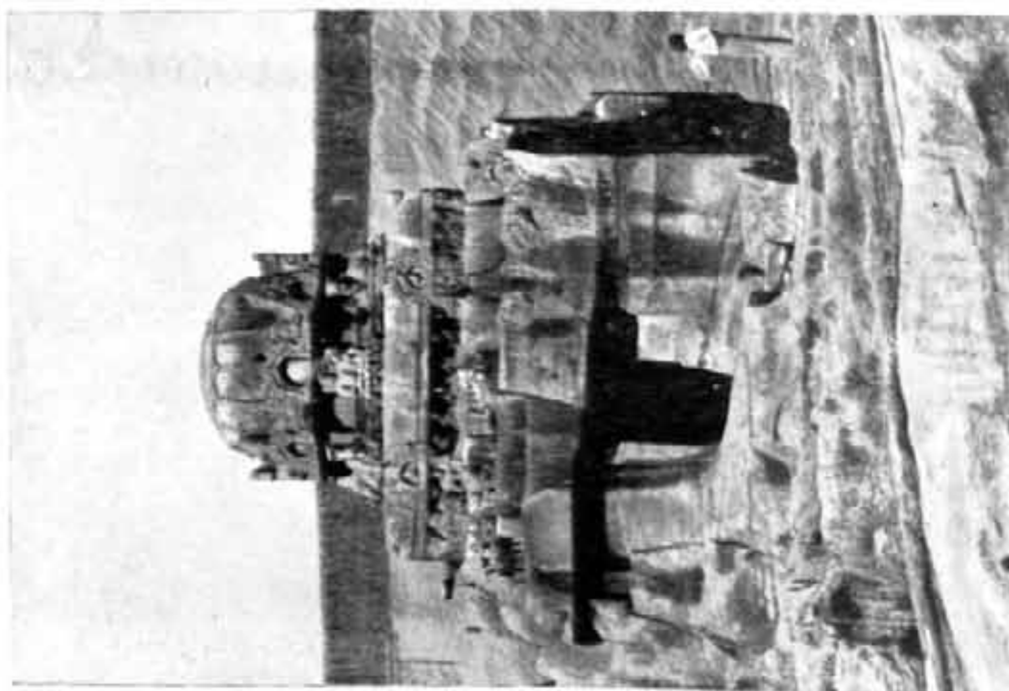
Badoli: temples. *See p. 81*



Sevilipatti: cave-temple. *See p. 81*



B



A

Kalugumalai: monolithic temple. *See p. 82*



A



B



C

A. *Sevilipatti: dancing Siva.* B. *Kunnakkuddi: Vishnu and Garuda.* C. *Namakkal: Narasimha.* *See pp. 81 and 82*



A



B

Katra: mosque of Murshid Quli Khan, before and after reconstruction of dome. *See p. 91*



A

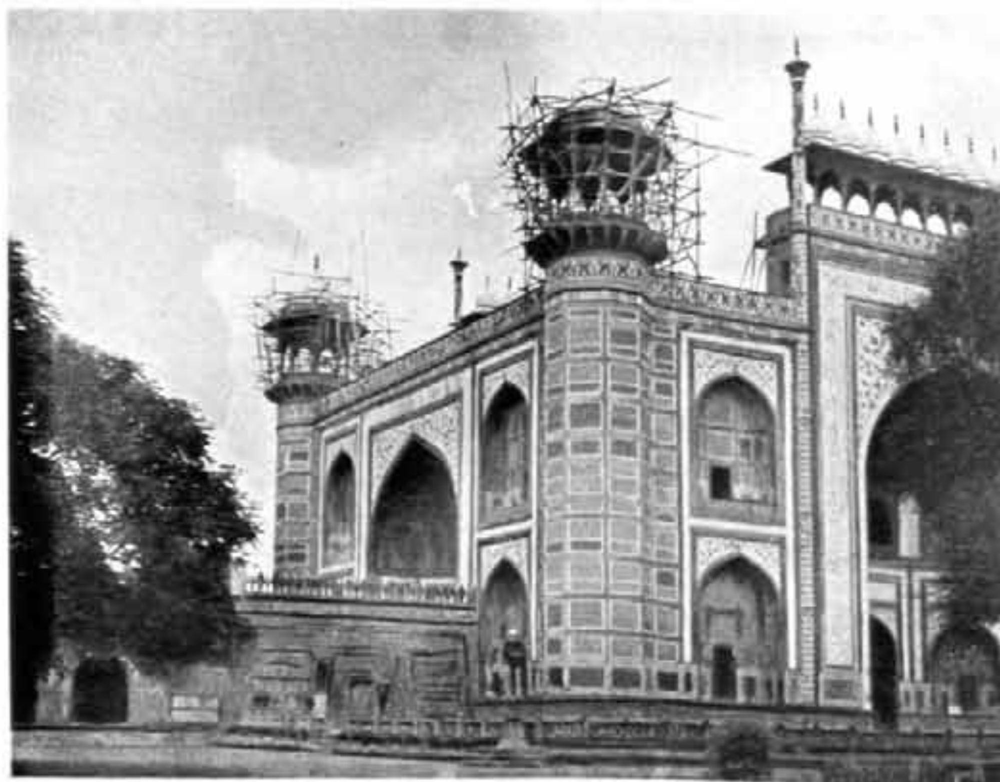


B

Jaunpur: Gomati bridge, before and during reconstruction of gumti. *See p. 92*

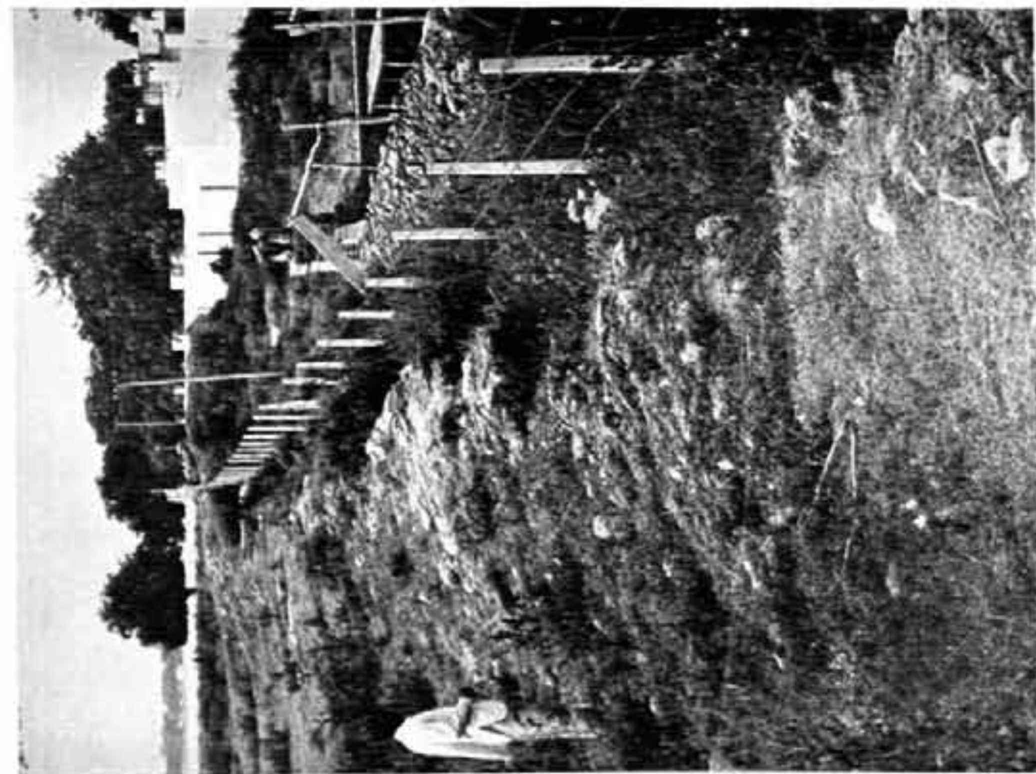


A



B

Agra: Taj Mahal, A, *foundations on river-side, and* B, *main gate. during repairs.* *See p. 95*



A



B

New Delhi: Najaf Khan's tomb, northern compound-wall, before and after clearance and repairs. *See p. 99*



A

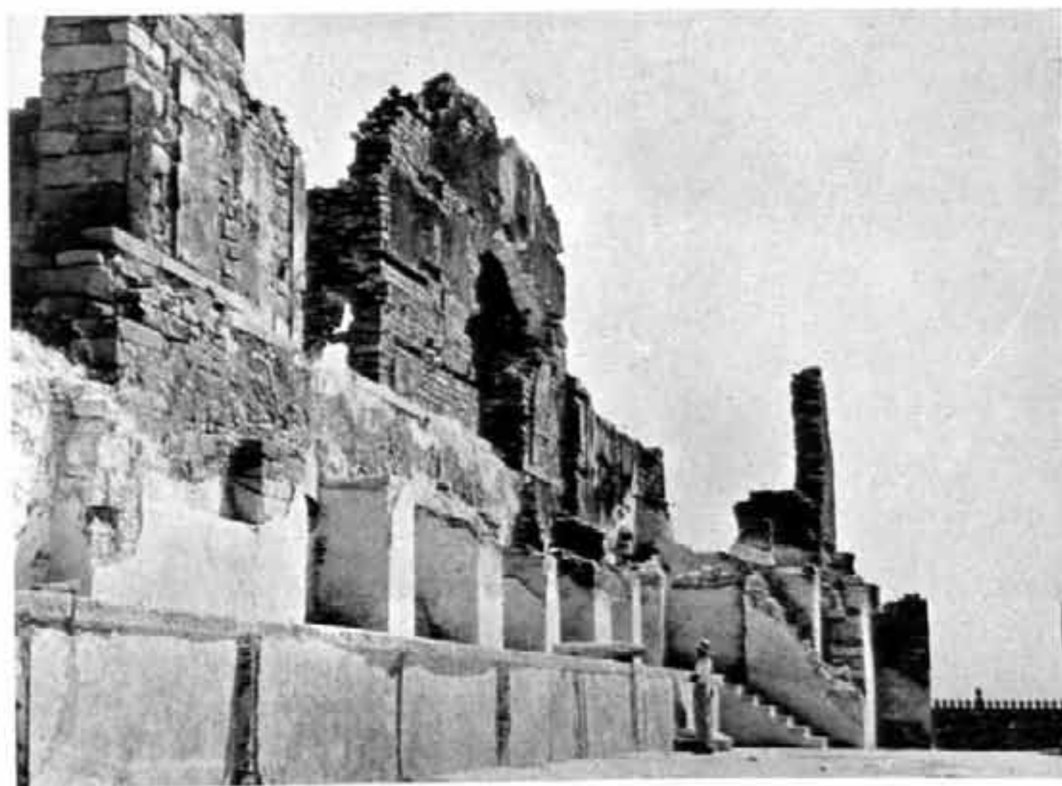


B

Suraj-Kund: south-western corner of the reservoir, before and after repairs. *See p. 99*



A



B

Golconda: fort, Rani-Mahal, before and after repairs. *See p. 101*

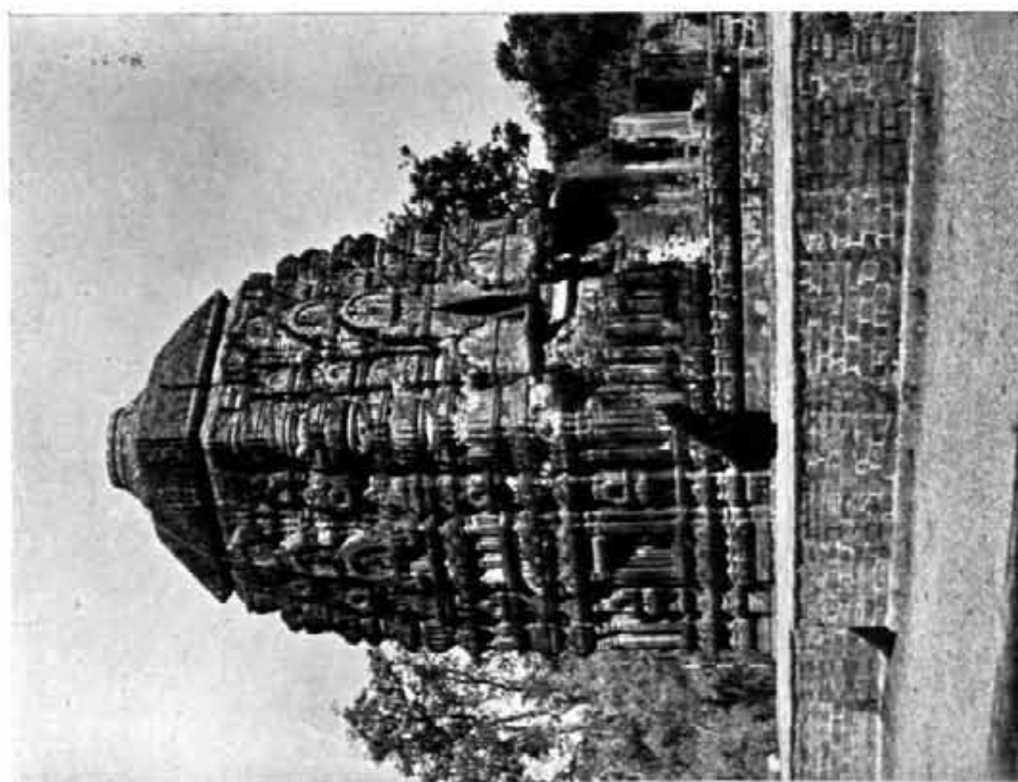


A

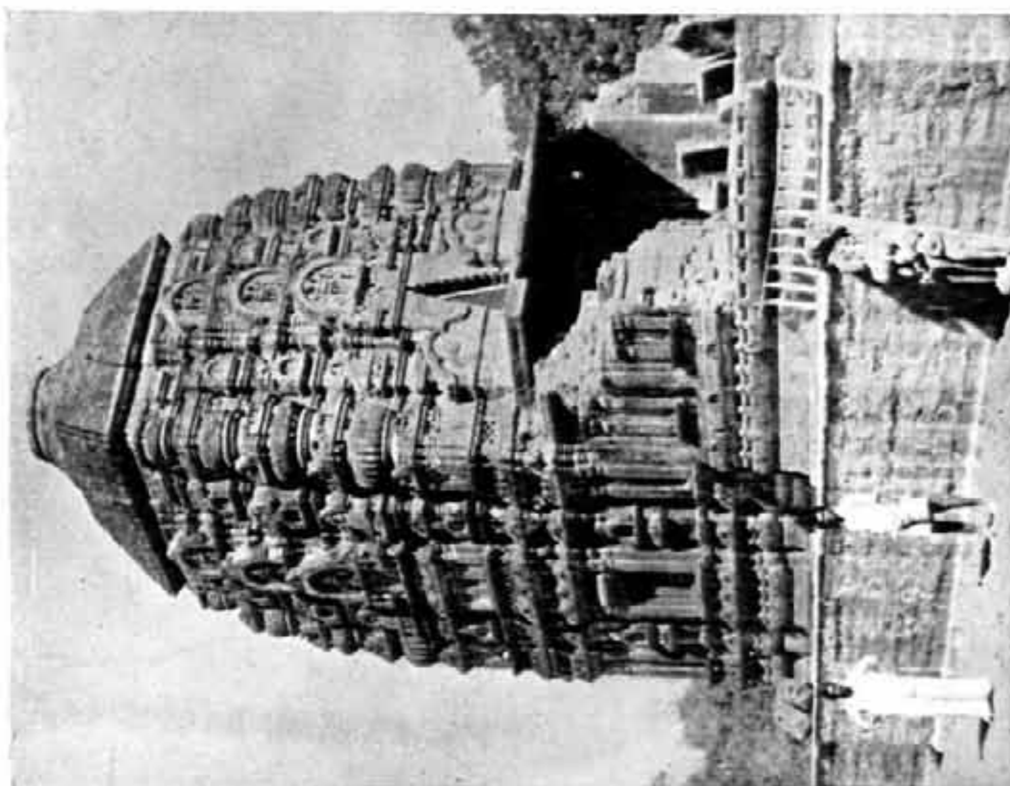


B

Salihundam: stupa and other remains, before and after repairs. *See p. 102*



A



B

Sirpur: Lakshmana temple, before and after repairs. *See p. 102*



A



B

Chinnakavandapur: Sankaridrug, fort-wall, before and after repairs. *See p. 104*



A

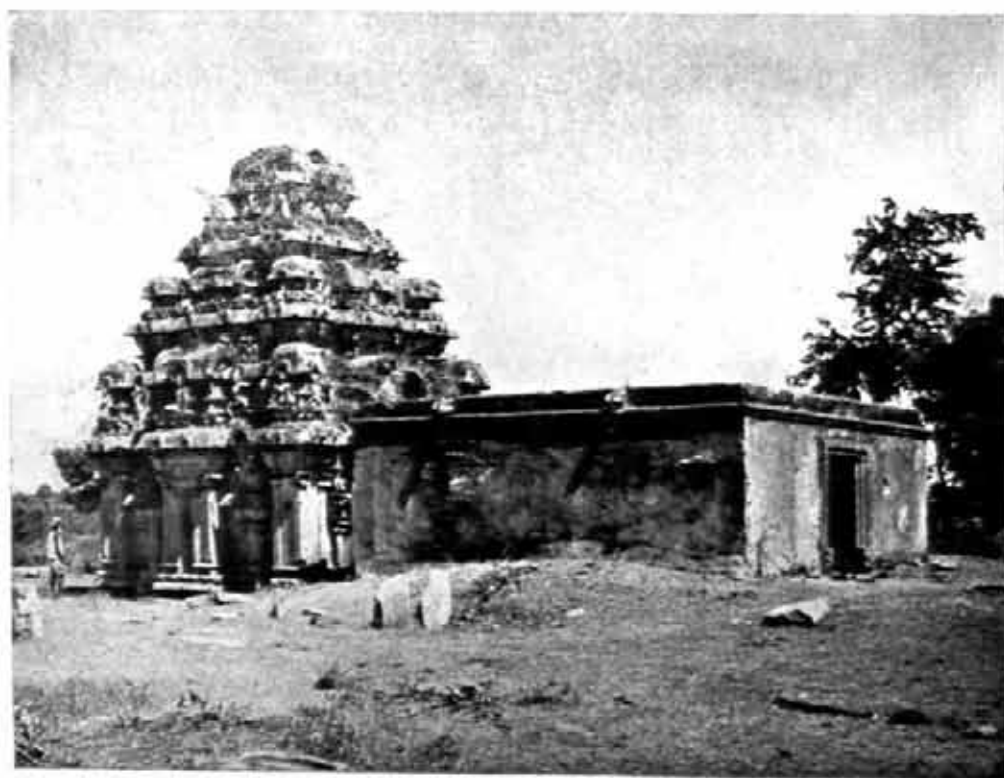


B

Avani: Ramalingesvara temple, before and after repairs. *See p. 107*



A



B

Narasamangala: Ramesvara temple, before and after clearance. *See p. 107*



B



A

Ajanta: Cave 18, before and after repairs. *See p. 108*



A

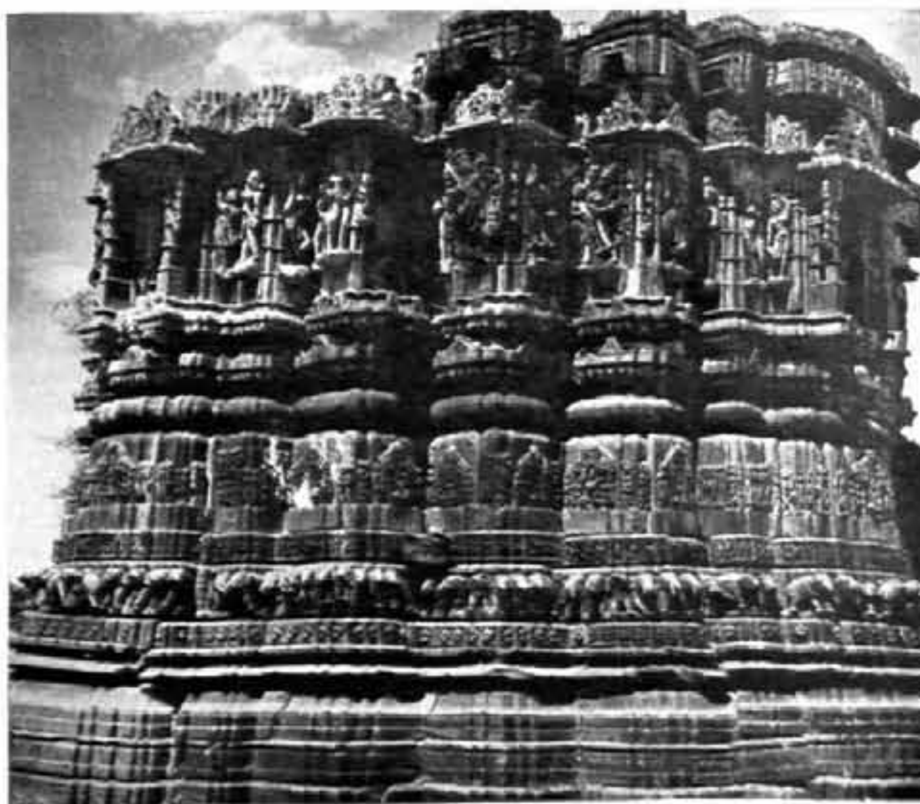


B

Vasai: Junagadhi-mata temple, before and after repairs. *See p. 112*

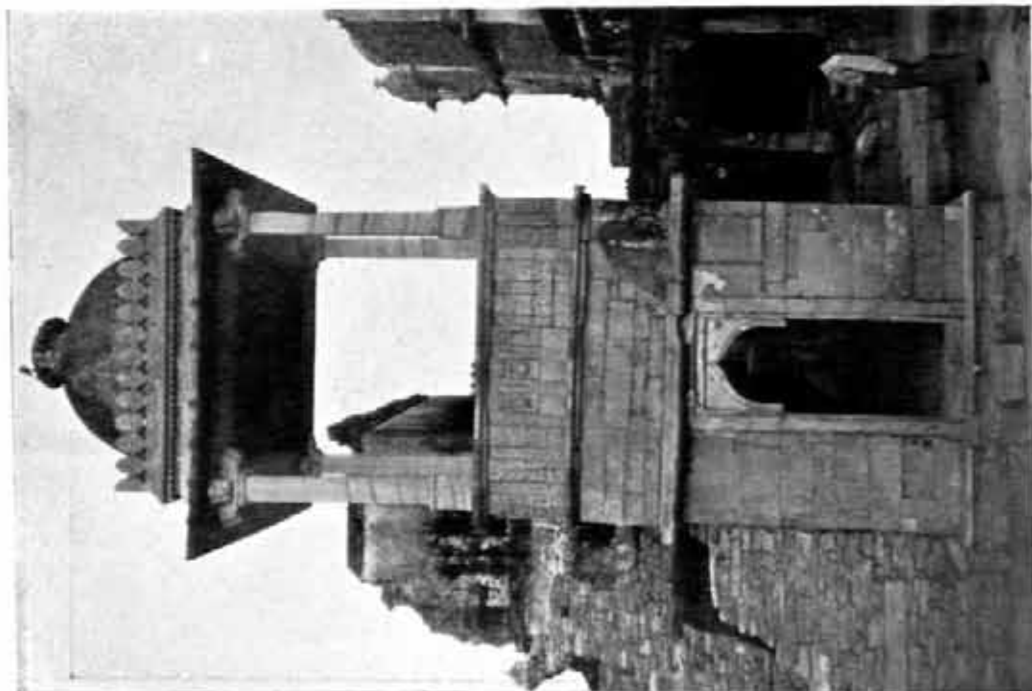


A

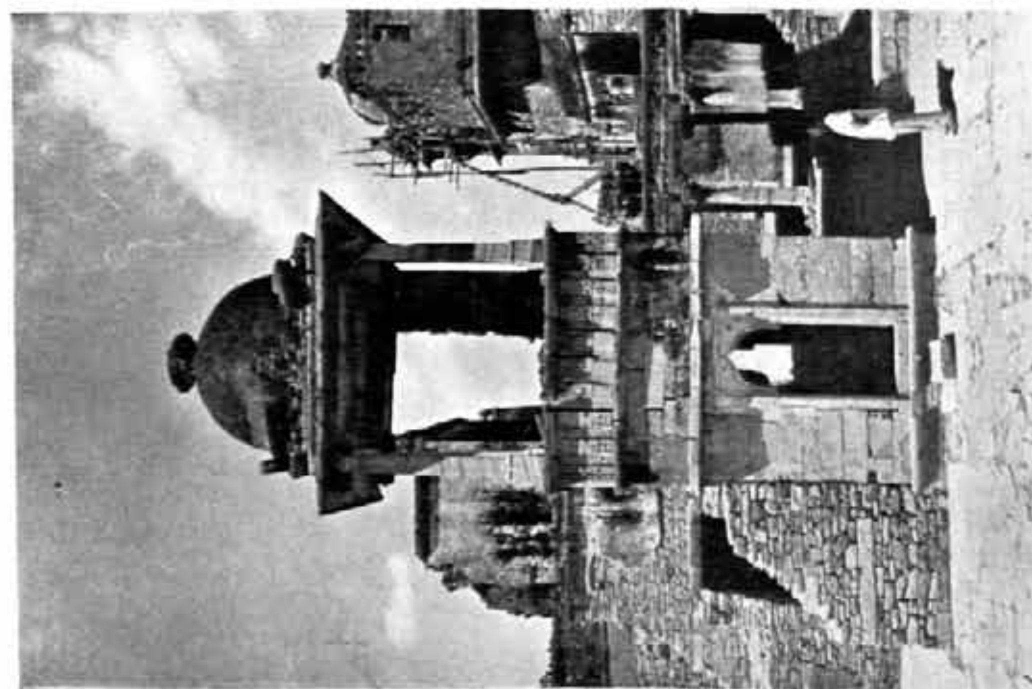


B

Bavka: Siva temple, before and after repairs. *See p. 113*

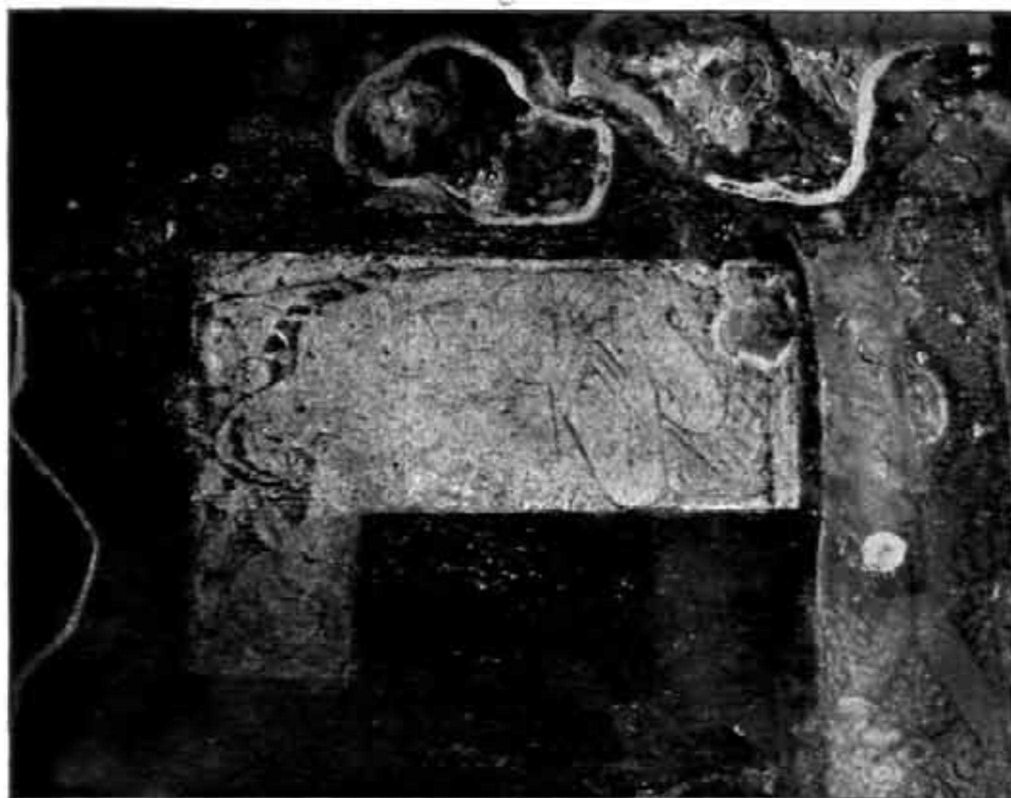


B

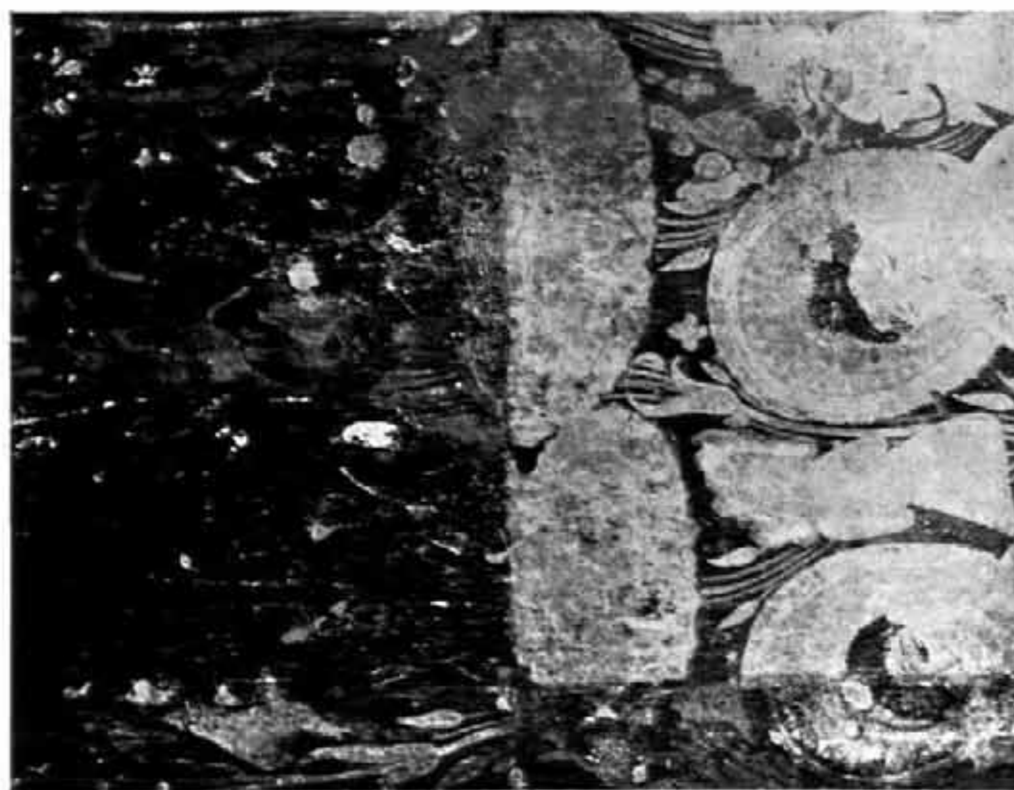


A

Chitorgarh: Rana Kumbha's palace, Nagar-khana, before and after repairs. *See p. 114*



B. *Ellora: Cave 32, painting during treatment.* *See p. 118*



A. *Ajanta: Cave 16, painting during treatment.* *See p. 118*



B



A

Markandi: sculpture, before and after treatment. *See p. 118*



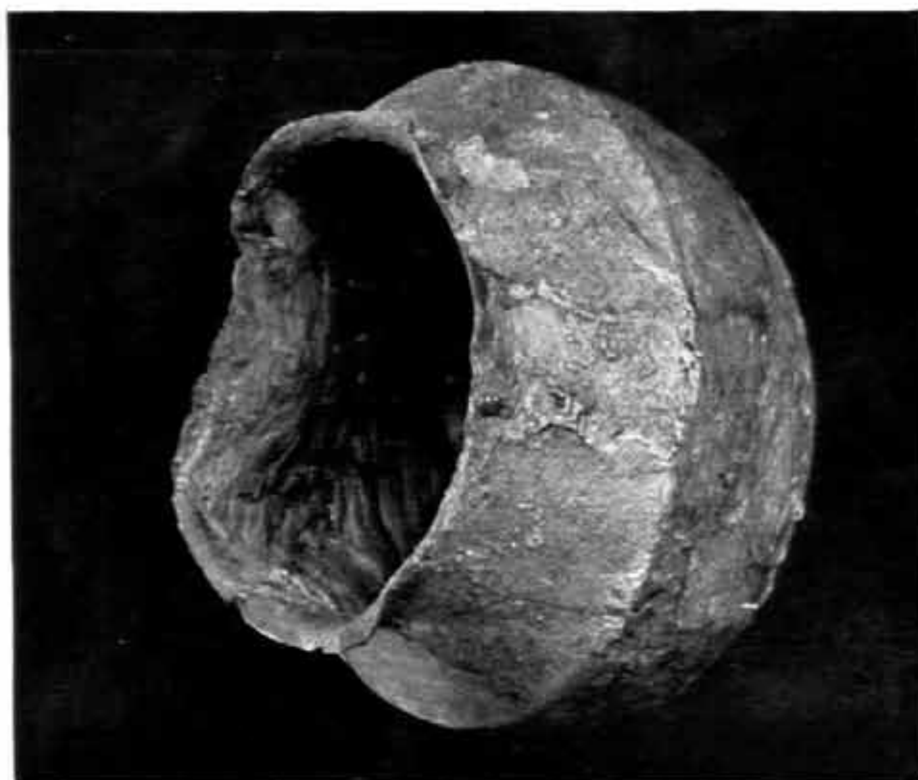
A. *Thanjavur: Brihadisvara temple, painting during treatment.*
See p. 119



B. *Srirangapatna: Daria-Daulat-Bagh, painting during treatment.*
See p. 119



Srirangapatna: Daria-Daulat-Bagh, painting during treatment. *See p. 119*



B



A

Lothal: bronze vessel, before and after treatment. *See p. 120*